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SHORT COMMUNICATION

The Occurrence of a Plastic Pen Inside the Gut of a Yellowfin Tuna *Thunnus albacares* (Bonnaterre, 1788)

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Abstract

The present paper reports the occurrence of a plastic pen inside the gut of a yellowfin tuna, *Thunnus albacares* (Bonnaterre, 1788) collected from Junglighat fish landing centre, Port Blair, India on 23 October 2017. The pen measuring 13.7 cm long was found in the stomach of the fish. The total length and weight of the fish was 43 cm and 4.6 kg respectively and gut/stomach length was 18.8 cm.

Keywords: tuna, ingestion, plastic, marine

Introduction

Marine plastic pollution has been a highly discussed topic in the recent years. A significant amount of research and field observations worldwide have provided evidences of the vast scale of plastic pollution in the marine environment. According to Islam and Tanaka (2004), plastics contribute the most significant part of marine litter deposits and solid wastes dumped into aquatic environments. Entanglement and ingestion of plastic debris by marine organisms are two major concerns of plastic pollution in the marine environment (Andrady 2011). Jambeck et al. (2015) suggested that marine litter affects around 15 % of the marine endangered species by ingestion and entanglement. According to a recent estimate, worldwide economic loss due to plastics in the marine environment is about \$13 billion every year (UNEP 2018a). This paper reports an unusual finding of a plastic pen from *Thunnus albacares* (Bonnaterre, 1788) from Andaman & Nicobar Islands, India.

Materials and Methods

During a regular survey on feeding habit of fish, a yellowfin tuna, *T. albacares* along with other specimens was collected at the Junglighat fish landing centre (Fig. 1), Port Blair. Length and weight of the specimen was noted followed by dissection to

analyse the gut content of the fish. Photographs of the gut were taken with the help of a digital camera.

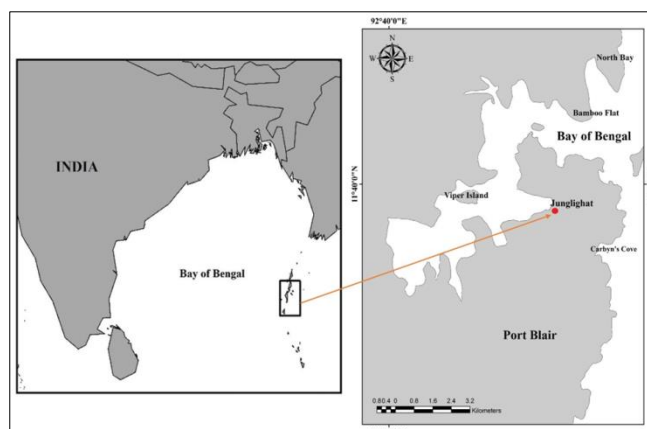


Fig. 1. Location of Junglighat in Andaman & Nicobar Islands, India.

Results and Discussion

Dissection of the *T. albacares* specimen revealed a plastic pen inside the stomach (Fig. 2). The length of the stomach was 18.8 cm and the total length of the pen was 13.7 cm. The word "sponsor" was engraved on the pen and it was broken at the posterior end and was without a cap. The finding is quite alarming considering the recent concern of



Fig. 2. (a) The pen inside the stomach (b) The pen after removal from the stomach.

plastic and solid waste pollution in the world's oceans. Over the years, numerous reports of ingestion and entanglement of solid wastes in the marine environment have been reported from different studies conducted in fishes, marine mammals, sea turtles and sea birds (DeGange and Newby 1980, Henderson 1984, Millner 1985, Carr and Cooper 1987, Jones et al. 1996, Auman et al. 1997, Derriak 2002, Campagna et al. 2007, Moore et al. 2009, Good et al. 2010, Brandão et al. 2011, Choy and Drazen 2013, Cózar et al. 2014, Browne et al. 2015).

The diet of yellowfin tuna mainly consists of smaller fishes, cephalopods, crabs, shrimps etc. (Kaymaram et al. 2000, Rohit et al. 2010). Occurrence of plastic debris in the stomach of yellowfin tuna was reported by Sajikumar et al. (2013) from the Arabian Sea. Tuna fishery is major source of marine fishery resource from the waters around Andaman and Nicobar Islands and along with the east and west coast of mainland India. Hence, plastic ingestion by tuna fishes is an alarming issue which needs further evaluations. This report on the occurrence of a pen inside the stomach of the yellowfin tuna highlights the issue and impact of marine pollution due to discarded debris from our domestic wastes. Plastic debris has always been a cause of concern since the 70's when different studies highlighted the issue with respect to marine environment (Carpenter and Smith 1972, Carpenter et al. 1972, Fowler 1987). Ingestion of microplastics (weathering degradation of plastics) by marine organisms have also been a cause of concern in recent years as reported by various studies (Barnes et al. 2009, Zarfl and Matthies 2010, Andrady 2011, Besseling et al. 2013, Koelmans et al. 2014).

Countries such as Australia, Italy, USA, Ireland and others have enacted laws to impose higher tax or to completely ban use of single use plastics primarily plastic bags (Brown 2003, Knoblauch 2018). On 5 June 2018, India announced that all single-use plastic in the country will be eliminated by 2022 (UNEP 2018b). However, more action is required throughout the world to save the aquatic life and conserve the marine environment in our oceans from the menace of plastic debris.

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