

Conservation news

Cotton buds—corporate change leads the way in the UK and Europe

The issue of plastic pollution in the seas, and of its potential to affect marine life through ingestion and toxic transfer, is now increasingly recognized (Rochman et al., 2013, *Scientific Reports*, 3, 3263). The plastic stems from cotton buds are a pervasive item of marine litter, reported from beach surveys across the UK and worldwide (e.g. Duhec et al., 2015, *Marine Pollution Bulletin*, 96, p.76–86; Poeta et al., 2016, *Marine Pollution Bulletin*, 113, 266–270; Nelms et al., 2017, *Science of the Total Environment*, 579, 1399–1409). Numbers may be underestimated, as stems are not included in all survey methodologies and are regularly misidentified (e.g. as lollipop sticks) by untrained volunteers during surveys (Tudor & Williams, 2003, *Journal of Coastal Research*, 19, 1104–1115). There is evidence of cotton buds being ingested by marine life; for example, fragments of cotton buds have been reported from analysis of stomach contents of fulmars (J.A. Van Franeker, pers. comm.) and whole stems have been found in loggerhead turtles, and cited as the cause of death for one individual following piercing of the intestine (J. Tomàs, pers. comm.).

Cotton bud stems reach the sea as a result of inappropriate disposal: they are often flushed into the sewage system, and their small diameter means they are not removed in sewage treatment plants. Public awareness campaigns (such as Don't Flush It messages) are a vital means to address the issue and have had some impact in reducing such sewage-related debris, but effectiveness may be limited temporally to when campaigns are active. Although improving the appropriate disposal of such items is still imperative, there is a chance to reduce the impact of cotton buds through redesign of the materials used, to ensure they are biodegradable. Rolled paper stems are one such option, and some well-known brands have only ever produced paper-stemmed cotton buds (such as QTips in the USA). These become waterlogged and begin to disintegrate if flushed, making them far less likely to escape waste water streams.

Over the last 4 years the UK environmental charity Fidra has actively engaged with companies to make the case for moving from plastic to paper stems in the sourcing and/or production of cotton buds. Johnson & Johnson Ltd., the UK market leader for cotton buds, was the first manufacturer to agree to replace their brand-defining blue plastic cotton bud stems with paper. This was announced publicly in March 2016, and paper-stemmed cotton buds went on sale in the UK in early 2017. Their sale will transition across Europe, the Middle East and Africa during 2017. Contacts established behind the scenes with nine other companies in the

UK (including leading supermarkets such as Waitrose) have resulted in commitments from them to change their sourcing and/or production in favour of paper-stemmed cotton buds.

The success of driving corporate change in this situation has been attributed to the growing reputational risk associated with plastics, intervention at senior levels of key companies, a track record of raising awareness on parallel marine plastic topics, and growing interest in the issue from other NGOs. We hope the leadership shown by major business in the UK and Europe will be replicated in other parts of the world, as pollution by cotton buds is a global issue.

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The Serengeti will die if Kenya dams the Mara River

The Serengeti ecosystem hosts the annual wildlife migration of up to 2 million animals (mainly wildebeests, zebras and other species of the plains). It is a World Heritage site, important to the Tanzania tourism industry, and an ecosystem living laboratory. It comprises the Serengeti National Park, the Masai Mara National Reserve in Kenya, and several Conservation, Game, and Wildlife Management areas. The Serengeti has one perennial river, the Mara, which is the only source of water for migrating wildlife in a drought year. The Mara River is formed by the confluence of the Amala and Nyangores Rivers, which drain the Mau forest in the Kenyan highlands; it is a transboundary river shared between Kenya upstream and Tanzania downstream (Fig. 1).

Under the framework of the Nile Equatorial Lakes Subsidiary Action Programme, and with the technical support of UNESCO-IHE, the Kenya Water Resource Management Authority has developed a water allocation plan for the Kenyan side of the basin (<http://nelsap.nilebasin.org/index.php/en/>). This includes plans for constructing (1) the 10 m high Norera dam on the Mara River, mainly for irrigation c. 30 km upstream of the Serengeti, (2) the 65 m Amala High dam in the Mau forest, with provision for water transfer through a tunnel from the Amala River to the Ewaso Ngiro River for hydroelectricity generation by three dams (Oletukat Olenkulo, Leshoto and Oldorko; 140, 57 and 30 m high, respectively) and discharge of that water to Lake Natron in Tanzania, and (3) one or two dams (Mungango and Silibwet, 30 and 70 m high, respectively) on the Nyangores River, mainly for irrigation (Fig. 1). None of these dams have yet been constructed, but the feasibility studies, except that for the Amala High dam, were completed by 2016. Tanzania is proposing the Borenga