

# Biological characteristics of Atlantic chub mackerel landings off Madeira Island (2002-2004)

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## INTRODUCTION

The atlantic chub mackerel, *Scomber colias* Gmelin 1789 (Fig. 1) is one of the main fisheries resources landed in Madeira Archipelago. In the last decade the total landings represented about 8% and 3% in weight and value respectively (Fig. 2). In 2007 the Atlantic chub mackerel landings were 309 tons. It is traditionally caught by a small and coastal purse-seine fleet that operates around the island, particularly in the south coast. It is captured along with other small pelagic fishes like the blue jack mackerels (*Trachurus picturatus*), sardines (*Sardina pilchardus*) and bogues (*Boops boops*), locally named "Ruama". Although it fetches a low price in the market, it is an important component of the diet of the local population. It is also used as bait to catch tuna fish.

## MATERIAL AND METHODS

Data from a biological monthly sampling program conducted between 2002 and 2004 on 4205 chub mackerel caught in Madeira waters were used in this study. Each fish was measured, sexed and a maturity stage was assigned by visual inspection of the gonads using a 5 stages maturity scale. Ages were assigned by counting growth marks on whole otoliths, assumed to be annual. Chub mackerel annual landings in size (total length) and age were estimated, by sex and maturity condition (immature and adults).



Figure 1 - Photo of a specimen of atlantic chub mackerel, *Scomber colias* Gmelin 1789, caught off Madeira Island.

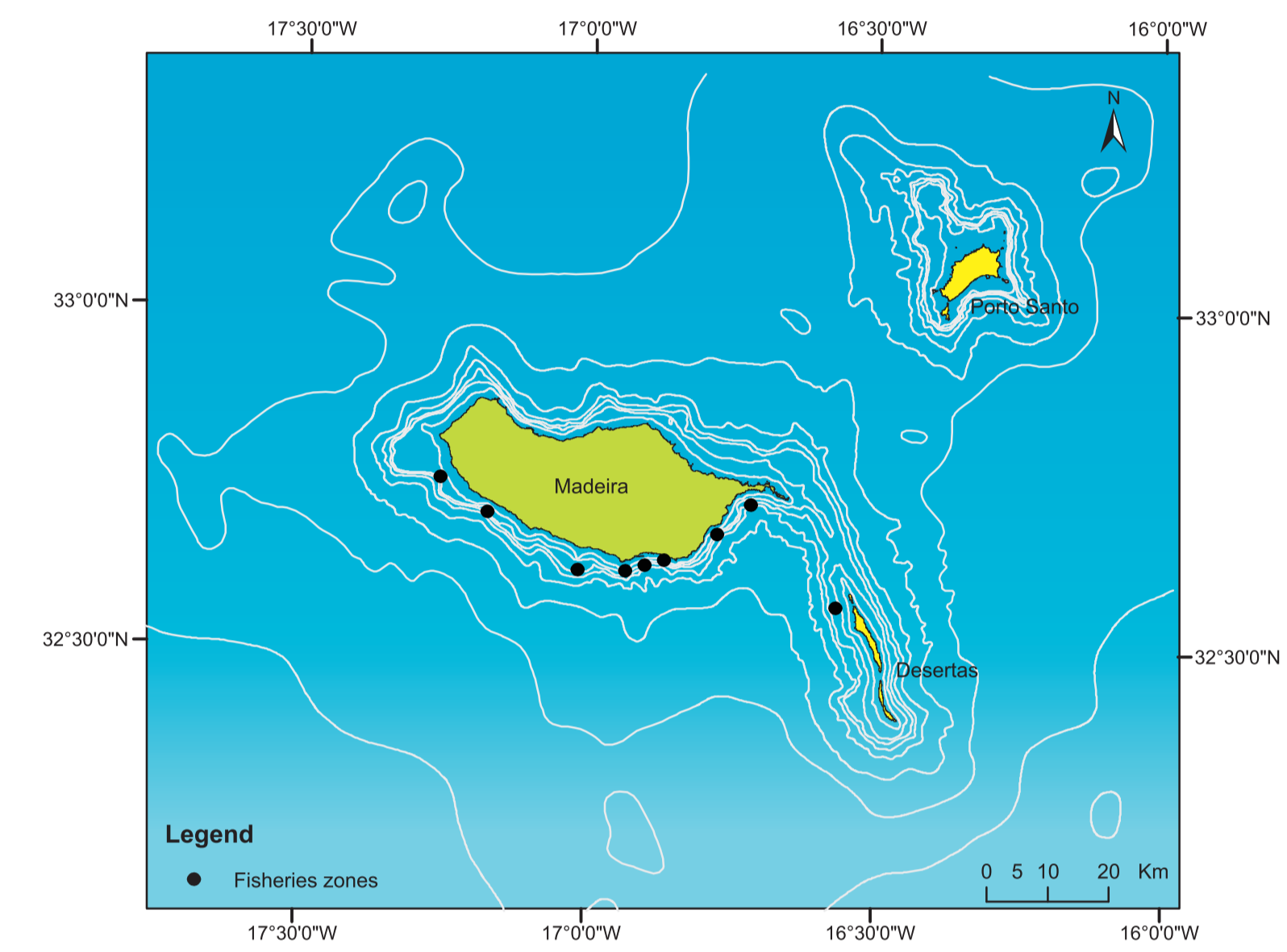
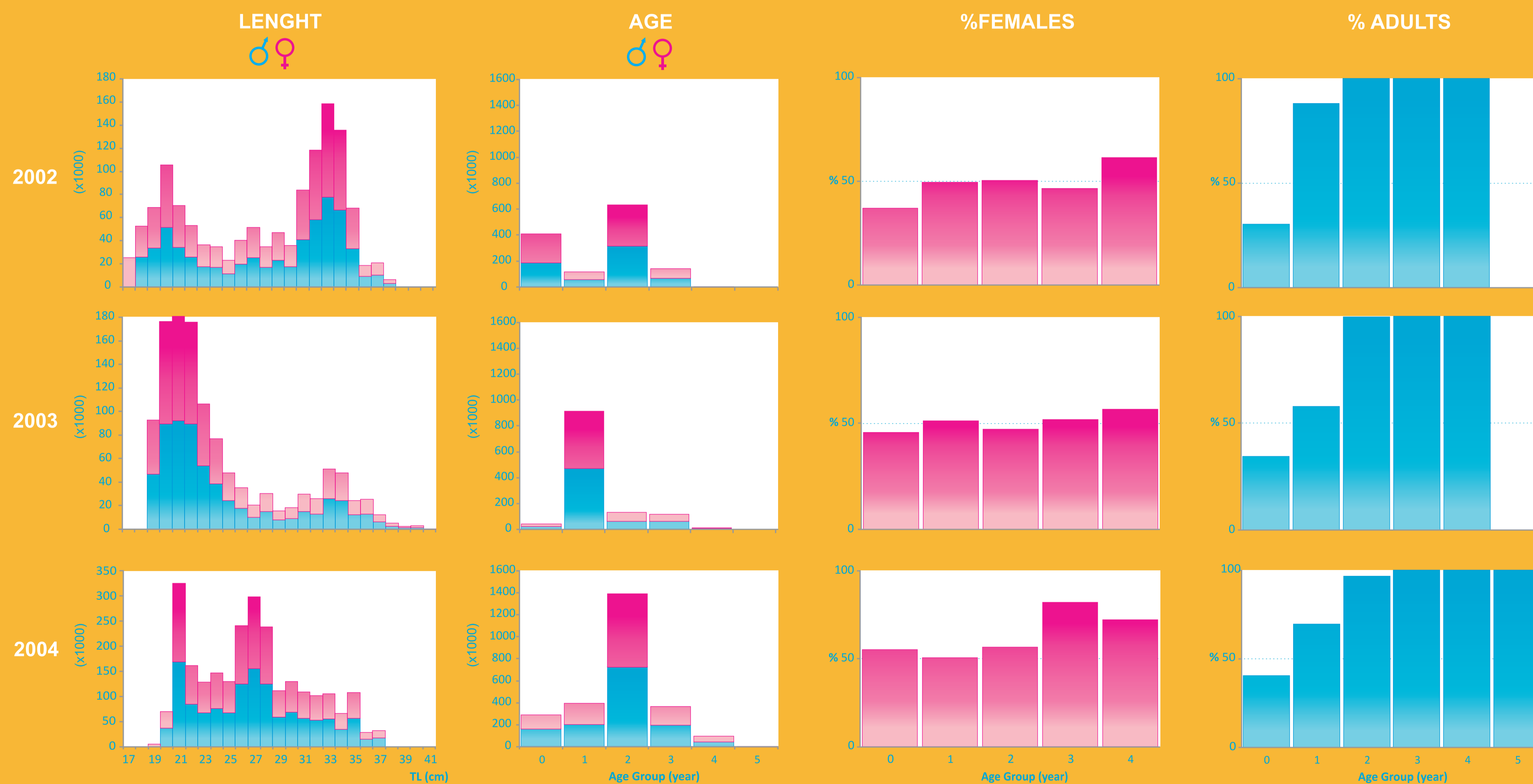


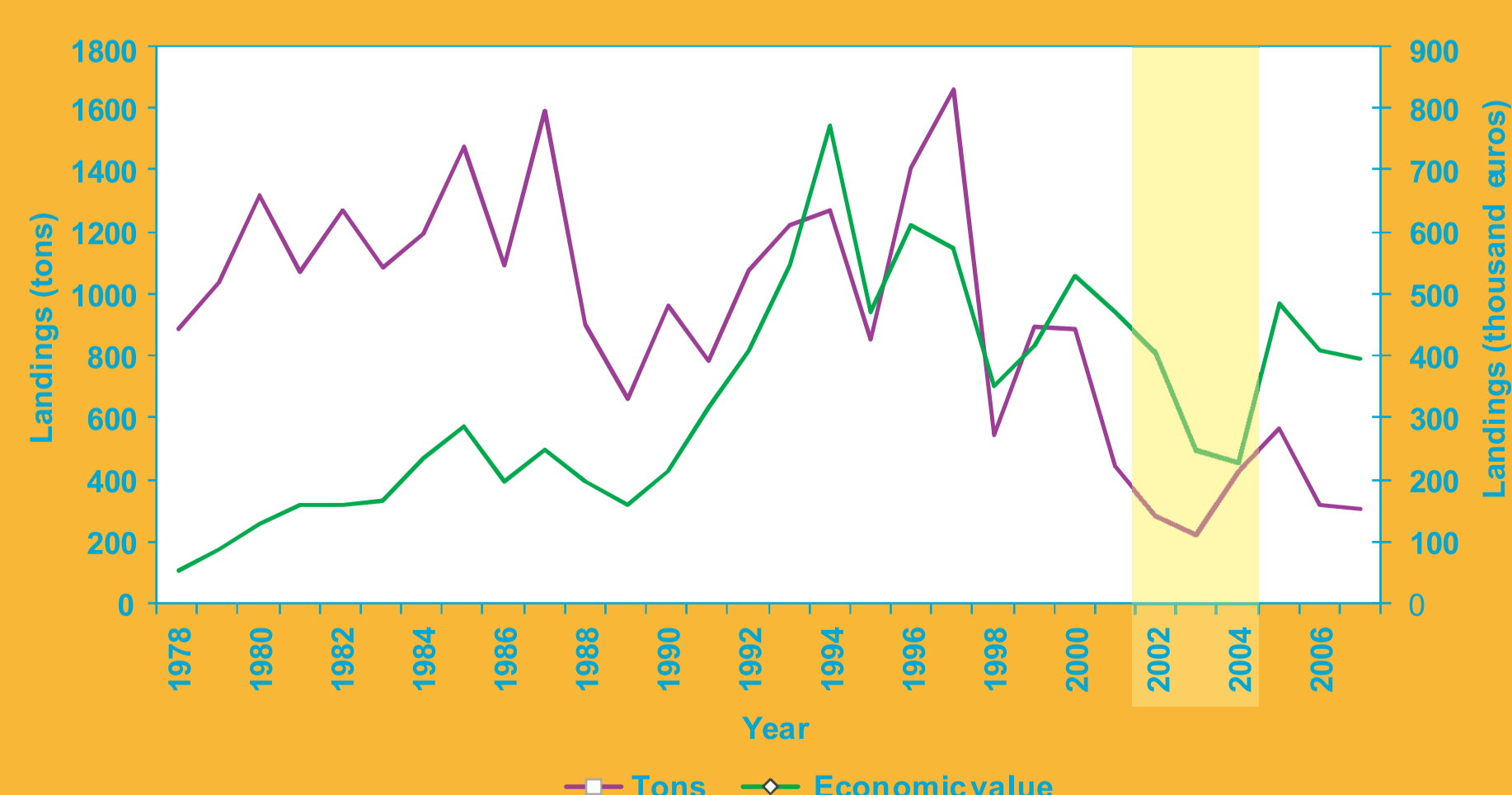
Figure 2 - Madeiran archipelago map showing the location of the fishing zones (black dots) for *Scomber colias*, according to positional data available for 2002-2005.

## RESULTS

### LANDINGS COMPOSITIONS



Landings of chub mackerel were mainly individuals of age groups 0 (35.7%) and 2 (45.3%) in 2002, age 1 in 2003 (75.5%) and age 2 in 2004 (56.6%), due to the strength of the 2002 year class. The progression of the 2002 year class during the sampling period strongly corroborates the formation of only one annual growth mark per year. Although the annual sex ratio was close to 1:1, there was marked differences in the monthly sex ratio by length class and age group. The percentage of adults in the landings were 74.1% in 2002, 66.0% in 2003 and 85.0% in 2004.



Annual total landings in weight (tons) and value (thousand euros) of *S. colias* caught off Madeira archipelago between 1978 and 2007 (source DSRP).

## RECOMMENDATION

Setting up a continuous biological sampling program for the Madeira commercial purse seine fishery is strongly recommended in order to obtain data for adequate fish stock monitoring and management.

## ACKNOWLEDGEMENTS

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