Is a "clean" beach really clean?

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Abstract

The plastic debris is a global problem, and can be found in several locations and in different quantities. Therefore, the object of the present study was to evaluate plastic debris and coast cleanliness along of the state of Rio Grande do Sul, Brazil, using the Clean-Coast Index (CCI). Five beaches were sampled during spring/summer (C1) and autumn/winter campaigns (C2). The municipalities of northern (N1;N2) are located in an intensely touristic area, while central (M3) and southern shoreline (S1;S2) are rural areas. In each area, macro and meso-litter items were collected manually within a transect between the strandline and the end of the backshore and 100 meters wide. Items were classified according to material and the plastic results were used in the CCI to classify the beaches between very clean (0) and extremely dirty (20+). A total of 6,448 items was sampled (C1=2,327; C2=3,060). Plastic comprised 4,010 items (74%): C1=1,821 (78.3%) (N1=72.3%; N2=75.4%; M1=83.3%; S1=82.8%; S2=83.4%) and C2=2189 (72%) (N1=71.4%; N2=52.7%; M1=88.3%; S1=94.9%; S2=85.7%). The results of CCI in C1 were N1 "very clean" (1.48); N2 "clean" (2.76); M1 "very clean" (1.73); S1 "very clean" (0.99); S2 "very clean" (0.56) and C2 = N1 "clean" (2.36); N2 "moderate" (8.24); M1 "very clean" (1.30); S1 "clean" (2.84); S2 "very clean" (1.06). Most beaches were classified as "very clean" and "clean", although there were a considerable amount of plastic items, most of them were fragments, food packaging and fishing rope filaments. The results show that despite being classified as either "very clean" or "clean" according to a given index, this does not mean a beach is completely free from plastic pollution and this information should be intently shared in order to raise public awareness.

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