Preliminary analysis on beach safety accidents in mainland China’s coasts

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ABSTRACT

Beaches are valuable recreational settings and coastal tourism industry has grown very rapidly in China. However, beaches can sometimes be dangerous for swimmers. There are lots of studies on the marine hazards such as storms but unfortunately, no study has been conducted regarding the beach safety accidents occurring in mainland China’s coasts. This study presents preliminary analysis on beach safety accidents during the time period of 2001-2019 in mainland China’s coasts. Since there is no official database of beach safety, the data was collected via public news reports on the Internet. We have collected 619 accidents, involving 1141 persons, with 586 drowning and 74 missing. More than 60% (390 of 619) of accidents occurred in Fujian Province (175), Hainan Province (117) and Shandong Province (98). Males (701) were about 4 times more likely to be in danger than their female (170) counterparts. Meanwhile, we analyze the demographics of injured persons and the spatial-temporal distribution of beach safety accidents. This study is one of the first attempts to investigate daily safety accidents on beaches in China. Increasing knowledge in this field can be useful for coastal management.

KEY WORDS: beach safety; surf zone injuries; coastal hazards.

INTRODUCTION

Beaches are always associated with recreation as a place for people to enjoy their leisure time. Recreational activities include sun bathing, swimming and wading, bodyboarding and surfing (West, 2005). Each summer, huge number of tourists spend their holiday on beaches. According to Hainan Official Tourism Information Website (https://en.explorehainan.com/), there were more than 11,530,000 people visiting the famous beach cities in Hainan Province during July to August 2019.

However, people can meet dangerous moments on charming beaches when they are swimming, surfing, wading or just viewing the scene on a rock. Potential health hazards include infections acquired from contaminated waters, lacerations/cuts, severe spine injuries or even death (Kevin and Jonathan, 2013; Robles, 2006). These dangerous moments are more common on beaches characterized by strong wave breaking at the shoreline and across a wide surf zone, where deformed waves and strong currents pose a great threat to beachgoers (Castelle, et al., 2018). Despite of this, the majority of people visiting beaches lack knowledge of beach safety (Ballantyne, et al., 2005). Some tourists tend to overestimate their swimming skill and their arrogance can lead to more risky behavior and more threatening circumstances (McCool, et al., 2009).

Fig.1 Distribution of provinces along the coastline of mainland China. The figure was obtained from Google Earth.

A drowning accident on the beach is associated with complicated societal and natural factors. Lifeguards and lifesavers record drowning rescues at some beaches, but it is impossible to collect all the information on busy, popular seaside. Obtaining personal information of people rescued is the most difficult and problems are also