

Environmental Management of Marine Ecosystems



Edited by
Md. Nazrul Islam
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Environmental Management of Marine Ecosystems

Applied Ecology and Environmental Management

A SERIES

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My Wife

SAHANAJ TAMANNA

and

My Daughter

SABABA MOBASHIRA ISLAM



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Climate Change Impacts on Marine Ecosystems in Vietnam

Nguyen Quang Hung, Hoang Dinh Chieu, Dong Thi Dung,
Le Tuan Son, Vu Trieu Duc and Do Anh Duy

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8.1 Introduction

8.1.1 Climate Change in Vietnam

Vietnam is considered to be a country that will be seriously affected by the impacts of climate change. According to credit rating company Standard and Poor's (2014), Vietnam is one of three countries (Vietnam, Cambodia and Bangladesh) that will suffer the most serious impacts of climate change. In recent decades, the frequency and intensity of storms, floods, rainfall and droughts have increased more dramatically and become harder to forecast. Vietnam is affected by tropical depressions and storms at a frequency of 4.7 times per year. However, these storms are occurring later than in previous years and are moving toward lower latitudes with higher impacts.

In winter, temperatures decrease in the first months of the season and then increase later. In the summer, the average temperature rises significantly, which leads to annual temperature increases. In different periods and regions, there is no clear trend in rainfall. Total monthly and annual rainfall either increases or decreases, but its impact is higher. In many parts of Vietnam, rainfall declines in July and August but rises in September, November and December. For example, heavy rains in November 2008 in Hanoi and nearby areas caused the deaths of 18 people and flooded many houses and streets.

In central Vietnam and the Mekong Delta, floods appear with higher frequency compared to the first half of the twentieth century. In 1999, a historic flood occurred at the end of the rainy season in central Vietnam. In 2007, four enormous floods destroyed all aquaculture facilities in this area during a 3-month period. In contrast, drought occurs annually with higher intensity in southern Vietnam and the Western Highlands during dry season.

Sea-level rise has led to the intrusion of salt water in coastal areas of Vietnam. In the Mekong Delta, 1.77 million ha were inundated by salt water, approximately 45% of the whole area. This area had the highest rate of salt water intrusion in Vietnam. According to climate change scenarios, which predict that sea level will rise +30 cm by 2050 and +100 cm by 2100, this will lead to the loss of land in the Mekong Delta and Red River Delta and jeopardize national food security.