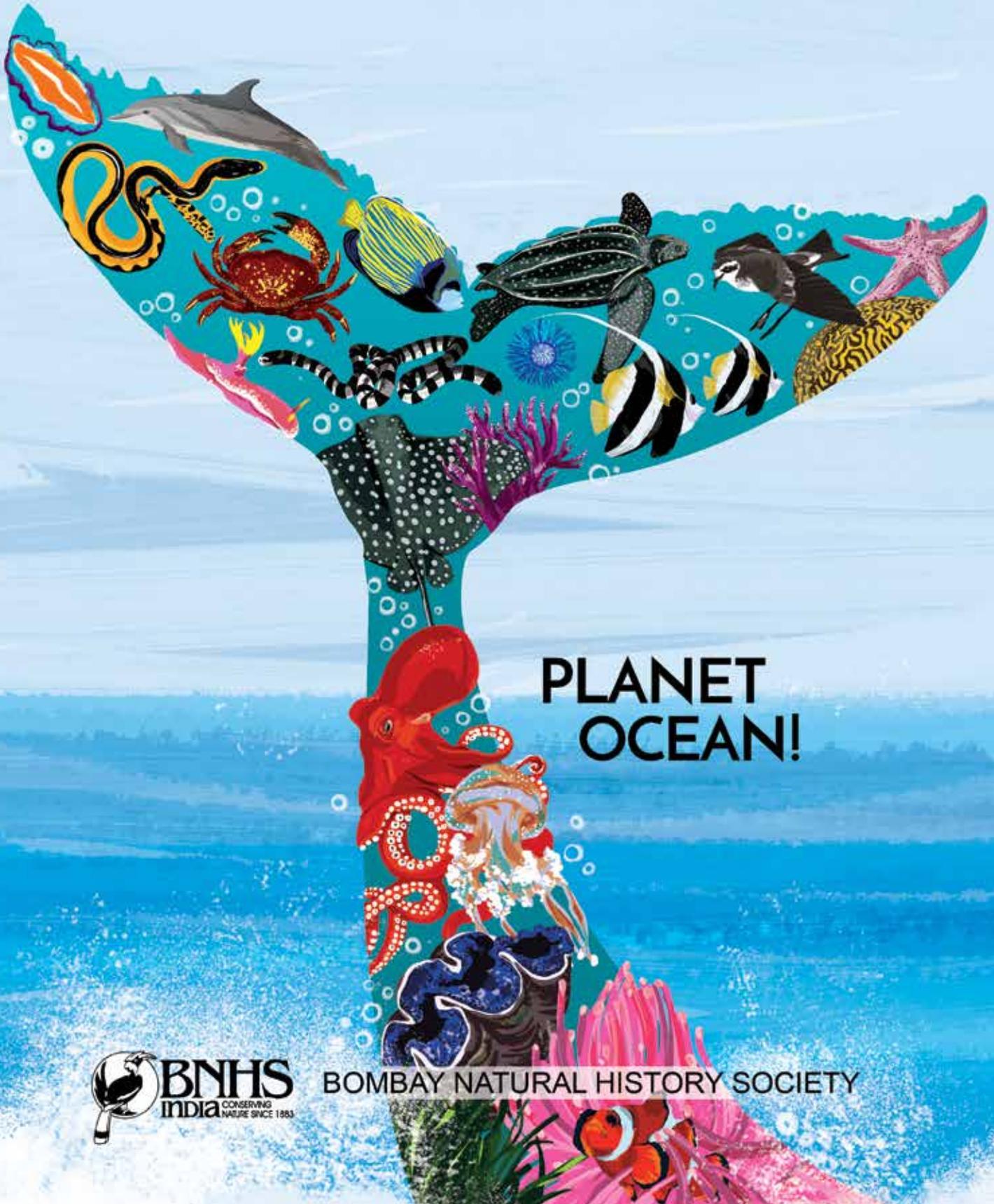


HORNBILL

DISCOVER THE LIVING WORLD

APRIL-JUNE, 2018

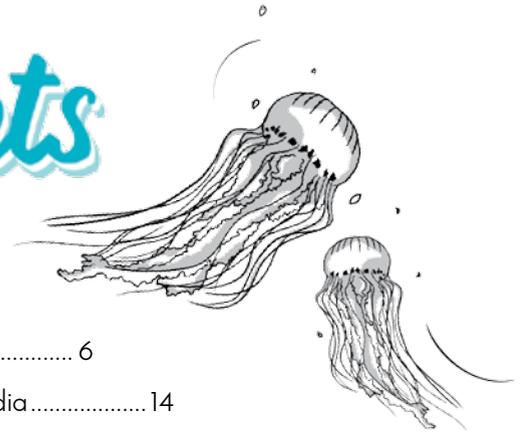


PLANET
OCEAN!



BOMBAY NATURAL HISTORY SOCIETY

Contents



GOVERNING COUNCIL

PRESIDENT

Mr. Homi R. Khusrokhhan

VICE PRESIDENTS

Ms. Usha Thorat

Mr. Praveensingh Pardeshi (IAS)

Lt. Gen. V.K. Ahluwalia (Retd)

HONORARY SECRETARY

Mr. Debi Goenka

HONORARY TREASURER

Mr. E.A. Kshirsagar

DIRECTOR

Dr. Deepak Apte

MEMBERS

Ms. Sumaira Abdulali

Dr. Erach Bharucha

Dr. Bharat Bhushan

Dr. Ravi Chellam

Ms. Tara Gandhi

Mr. Arun Kumar Gupta

Mr. Isaac Kehimkar

Dr. Ashok Kothari

Mr. Kulojyoti Lahkar

Mr. Satish Pradhan

Dr. Asad R. Rahmani

The Joint Secretary,
Ministry of Environment, Forest &
Climate Change Govt of India
The Addl IG Forests (WL),
Ministry of Environment, Forest &
Climate Change, Govt of India
The Director of Archaeology & Museums,
Govt of Maharashtra

EDITORS

Deepak Apte

Vibhuti Dedhia

Ranjit Manakadan

CONSULTANT EDITORS

Gayatri W. Ugra

Isaac Kehimkar

EDITORIAL ASSISTANT

Sonali V. Vadhavkar

LAYOUT

V. Gopi Naidu

Sanchita S. Kadge

COVER & DESIGN

Ashvini Menon Visual Design Studio

Editorial..... 2

Planet Ocean! 5

Fascinating creatures of the sea..... 6

Coastal and marine hotspots of India 14

Gulf of Kachchh – an unexplored seascape..... 20

Behemoths of the sea 28

Polyclad flatworms – weirdlings of the sea 32

Walking along the shores of Mumbai 36

Fun facts 40

Understanding reef resilience in the Andamans..... 42

Marine fishes..... 46

Tracking the gentle giants..... 56

Marine reptiles..... 62

Tracking a hundred-million-year-old giant..... 66

Serpents of the sea 70

In quest of the ocean wanderers 74

Marine mammals in the Indian seas 78

Conservation of Dugongs in India..... 84

Underwater photography..... 90

The omnipresent photographer..... 100

Upcoming marine photographer..... 104

Adaptations for survival 108

Hidden in the depths 112

A voyage to the last wilderness 118

Frozen waters of the Arctic 124

Obituary 128



Published and printed quarterly
by Mr. Debi Goenka for the
Bombay Natural History Society,
Printed at Akshata Arts Pvt. Ltd.,
Lower Parel, Mumbai.
Reg. No. RN 35749/79, ISSN 0441-2370.

For more information on the Society and its activities, write to the Honorary Secretary, Bombay Natural History Society, Dr. Sálím Ali Chowk, S.B. Singh Road, Mumbai 400 001, Maharashtra, India.
Tel.: (91-22) 2282 1811 Fax: (91-22) 2283 7615 E-mail: info@bnhs.org Website: www.bnhs.org

Views expressed by the contributors in *Hornbill* are not necessarily those of the BNHS.
Unsolicited articles and photographs, and materials lost or damaged are not our responsibility and no claims will be entertained.

© Bombay Natural History Society 2018

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without permission in writing from the Bombay Natural History Society (BNHS). Enquiries concerning reproduction outside the scope of the above should be addressed to the Honorary Secretary, BNHS, at the address given.

Editorial



DEEPAK APTE

Almost three-quarters of our planet's surface is covered by water, yet we call it earth, a strange misnomer. The seashore, offshore and pelagic waters, and even the deep sea have a wondrous world within them, which has no parallel on land. From tiny nudibranchs to beds of coral and seagrass, myriad shoals of fish, and to the largest living animal in the world – the gigantic Blue Whale – oceans are home to incredible beauty and diversity. However, more is unknown than known about the wonderworld under water, rather than on land.

Unfortunately, especially in recent decades, the marine ecosystem has been exploited to the extent that our ecosystems are on the brink of ecological collapse. Archbishop William B. Ullathorne of Birmingham, in his autobiography *FROM CABIN-BOY TO ARCHBISHOP*, talked about his early life on ships that ran from Hull, England, to Scandinavia. On

his voyage to the Baltic, he wrote, “We have been held here in the port for three days, so thick have been the shoals of fish that we cannot leave the harbour.” There cannot be a starker contrast with the experience today, and this story is the same across all continents.

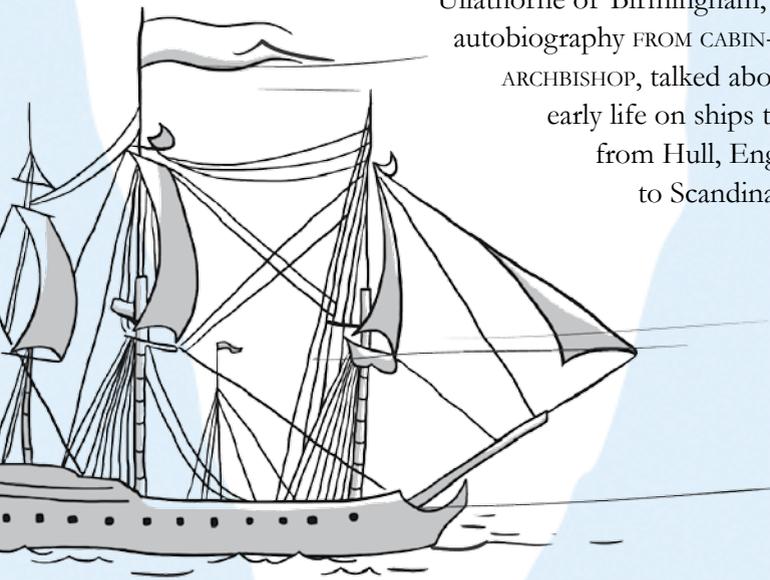
Our oceans are being emptied by greed. We need no more science to tell

Our oceans probably have more plastic and more toxic material now than fish.

us that our fish stocks are diminishing at such a rate that there will be no fish left in the oceans to commercially harvest in the next half century.

Our oceans probably have more plastic and more toxic material now than fish – such is the tragedy of our generation. To add to these woes, climate change and sea level rise stare at us with consequences that we cannot even imagine. And at times, when we need to make firm and stringent policies to insulate and protect our lives and livelihoods, we continue to dilute them further and further.

For example, the draft Coastal Regulation Zone Notification, 2018 is not only regressive, it will also put the



lives of millions of people at risk in the context of climate change and sea level rise, let alone investment risks for housing and developmental projects along coastal areas. Instead of moving away from the shore, the proposed draft takes us closer to it, creating a recipe for disaster. For short-term economic gains, we are undermining the lives and livelihoods of millions of people living along the coast. The state-wise data of changes in shore areas due to accretion/erosion, as provided by Space Applications Centre (SAC), clearly suggest that the shore areas of states like Maharashtra, Andhra Pradesh, Odisha, West Bengal, Lakshadweep, and Andaman & Nicobar have suffered serious depletion. The Indian coast lost a nett area of about 73 sq. km during 1989–1991 and 2004–2006, and as much as 45% of India's 8,414 km long coastline is facing erosion.

A recent paper (Storlazzi et al. 2018) predicts that most of the atolls will be uninhabitable by the mid-21st century because of sea-level rise, exacerbating wave-driven flooding. The entire Lakshadweep Archipelago will face an uncertain future. Under such circumstances, provisions such as reduction in NDZ (No Development Zone) as proposed in the recent coastal draft notification that facilitates infrastructure development in the inter-tidal areas only enhances these risks. Any policy framework must be approached with Precautionary Principle, especially when it comes to unpredictable natural events. It is foolish to believe that sea walls, bunds, and tetrapods can address sea level rise. Climate change is a reality, and by ignoring it we are compromising our lives and the rights of our children and grandchildren.



The draft Coastal Regulation Zone Notification-2018 excluded civil society completely while framing the rules. Any act/law that impacts the lives and livelihoods of millions of its citizens, its ecosystems and biodiversity at large, cannot and should not exclude civil society from the consultation process. Hazard lines should be defined purely by ecological and climatic considerations. The proposed notification has extremely grave consequences on our lives and needs to be redrafted, keeping climate change and sea level rise foremost.

The BNHS marine programme is currently working at several key marine biodiversity areas, such as Lakshadweep, Andaman and Nicobar, Gulf of Kachchh and inter-tidal areas of Maharashtra, Andhra Pradesh, Tamil Nadu, and Gujarat. One of the flagship projects under the marine programme relates to understanding the impact of anomalous sea surface temperature on coral reefs using Giant Clams as surrogate species in Lakshadweep Islands.

This issue of *Hornbill* on life underwater is dedicated to our beloved Dr. B.F. Chhappgar, a marine biologist specializing in carcinology, who has been an inspiration to several marine biologists, including me. A prolific writer, he has authored over 10 books and written hundreds of scientific papers. He was a member of the BNHS Executive Committee for 14 years.

We have attempted to illustrate the spectacular life under water to generate public support for its conservation.

