

Scientists call for urgent need to study the impacts of biomass burning and haze on marine ecosystems in Southeast Asia

March 7 2014

Researchers propose coordinated response plan to study these impacts for more effective management of threatened marine ecosystems

Researchers are highlighting the urgent need to understand impacts of biomass burning and haze on Southeast Asian marine ecosystems in a paper published in the journal *Global Change Biology* on 6 March 2014. The scientists also proposed a coordinated response plan for a more effective management of these vital ecosystems.

The unprecedented high levels of transboundary haze in Southeast Asia last year prompted Dr Zeehan Jaafar, a lecturer at the Department of Biological Sciences at the National University of Singapore Faculty of Science, and Dr Tse-Lynn Loh, a postdoctoral research associate at the Daniel P. Haerther Center for Conservation and Research, John G. Shedd Aquarium (Chicago, USA), to critically evaluate the potential impacts of biomass burning and haze to marine ecosystems.

In the paper, Dr Jaafar and Dr Loh call upon scientific institutions, non-governmental agencies, government bodies and policy-makers in the region to recognize the importance of the haze as an additional stressor to marine environments. In addition, they proposed a coordinated regional response plan for monitoring and studying the impacts of burning and haze to marine ecosystems. The researchers suggest that gathering this critical baseline information will enable a more effective

management of vital marine ecosystems in Southeast Asia, and provide a case study to better understand similar occurrences in other locations around the world.

Crop residue and forests are burnt in many tropical countries to clear land for agriculture. In Indonesia, annual [biomass burning](#) activities cause a widespread smoke-haze phenomenon that affects human health, quality of life and incomes locally and in neighboring countries. While the impacts of these large-scale burning on terrestrial and atmospheric habitats are immediate and obvious, little is known about how adjacent coastal ecosystems such as coral reefs, seagrass and mangroves are affected.

Marine ecosystems of Southeast Asia are global hotspots for biodiversity and supports high levels of endemism. Natural resources derived from these areas sustain local economies and meet global demands. Yet, many marine ecosystems in this region are over-exploited and highly threatened. The reduction in sunlight from the haze, and the mass deposition of particulates from forest fires into coastal habitats are likely to have a negative impact on these marine ecosystems. Interactions between these primary impacts are likely to further damage these already imperiled ecosystems.

Dr Jaafar, the lead author of the paper, said, "Marine areas are vast and at the same time, a shared resource. International collaborations for the long-term monitoring of regional [marine ecosystems](#) increase efficiencies, decrease costs and maximize areas under surveillance. Ensuring the rapid sharing and dissemination of information is key in managing these threatened areas."

"Land, air and sea are highly interconnected. Being aware of both direct and indirect impacts to marine habitats help us safeguard these natural resources," said Dr Loh, co-author of the paper.

More information: Jaafar, Z. and Loh, T.-L. (2014), "Linking land, air and sea: potential impacts of biomass burning and the resultant haze on marine ecosystems of Southeast Asia." *Global Change Biology*. [DOI: 10.1111/gcb.12539](https://doi.org/10.1111/gcb.12539)

Provided by National University of Singapore

Citation: Scientists call for urgent need to study the impacts of biomass burning and haze on marine ecosystems in Southeast Asia (2014, March 7) retrieved 20 March 2024 from <https://phys.org/news/2014-03-scientists-urgent-impacts-biomass-haze.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--