

## Zone tropical coastal oceans—manage them more like land resources, scientists say

July 2 2014

---



Satellite images depict the growth of Manila between 1989 and 2012. Covering 638 km<sup>2</sup>, its greater metro region now houses 11 million people, making it the 9th largest city by population. One fifth of the global population occurs along tropical coasts in small villages and in cities like this. Credit: US Geological Survey - Earth Resources Observation and Science Center, and National Aeronautics and Space Administration - Land Processes Distributed Active Archive Center

Leading international environmental and marine scientists today published a joint call for societies to introduce and enforce use zoning of Earth's coastal ocean waters, mirroring approaches commonly used to manage and protect land resources.

Writing in the journal *Marine Pollution Bulletin*, the 24 scientists from Canada, the USA, the UK, China, Australia, New Caledonia, Sweden and Kenya underline that one fifth of humanity—mostly in developing countries—lives within 100 km of a tropical coastline. Growing populations and worsening climate change impacts ensure that pressures on tropical coastal waters will only grow, they warn.

Lacking in most locations are holistic, regional-scale management approaches to balance the growth in competing demands from fisheries, aquaculture, shipping, oil, gas and mineral extraction, energy production, residential development, tourism and conservation.

Says lead author Peter Sale of the UN University's Canadian-based Institute for Water, Environment and Health: "We zone land for development, for farms, for parks, for industry and other human needs. Required today is a comparable degree of care and planning for coastal ocean waters."

"We have tended to think of the seas as our last great wilderness," he adds, "yet we subject them, particularly along tropical shores, to levels of human activity as intense as those on land. The result is widespread overfishing, pollution and habitat degradation. Coastal marine management efforts today are just woefully inadequate to avoid irreparable degradation of the bounty and services on which so many people depend for food and well-being."

A major effort and strong political will are needed to build the holistic, regional-scale management of coastal waters now lacking in most locations. Dr. Sale and colleagues advocate substantially expanded use of Marine Spatial Planning (MSP): an objective procedure for partitioning portions of the coastal ocean among competing uses. But using MSP also forces the regional-scale, holistic approaches to [coastal management](#) that nations desperately need.

"We propose making expanded use of marine spatial planning and zoning as a framework that will apportion coastal waters for differing activities, while forcing a multi-target and multi-scale approach, and achieving agreed ecological, economic and social objectives," says Sale.

According to the paper, coastal fisheries and aquaculture, for example, are in frequent and growing conflict. Both are of major importance to the food security of tropical coastal populations. Easily remedied [coastal pollution](#) is ignored, degrading habitat and reducing the capacity of both fisheries and aquaculture efforts. Employment opportunities, health and quality of life all are reduced, along with ecological resilience when environmental health degrades.

MSP can be expected to help address such use conflicts while also protecting and conserving ecologically critical areas to allow healthy ecosystem function. Its real value, however, will lie in the way its use brings multiple stakeholders together around a holistic vision of [environmental management](#), addressed at ecologically appropriate spatial and temporal scales.

"At the moment, we are trying to map uses onto marine spaces with insufficient attention to competing needs," says co-author Tim Daw of the UK's University of East Anglia. "More systematic planning is clearly required along tropical coasts, where so much of the population depends directly on the adjacent sea for livelihood and well-being. Here, we face a challenge, and an opportunity, to put in place truly effective management of [coastal waters](#), and improve the lives of millions of people."

According to the authors, management attempts frequently fail today because they:

- are mounted at too small a geographic scale and/or over too short

a period of time

- focus on single issues (conservation, fisheries enhancement, land-based pollution) without regard to other problems that act together to degrade coastal environments
- are imposed from "outside," often in a one-size-fits-all or cookie-cutter approach, without the consultation and consensus-building needed to gain real traction with the local community, management agencies or governments.

"While there are a few exceptional places," the paper says, "all too often, current management of development, habitat destruction, pollution, and overfishing is seriously inadequate, and if this management is not improved we are confident in stating the following:

- Most coastal fisheries will be chronically overfished or collapsed
- Loss of reef habitat will further reduce fisheries production and strain food security.
- Land-based pollution will increase to the extent that hypoxia and harmful algal blooms are routinely present
- Pressures of [coastal development](#) will combine with sea level rise and more intense storms to further intrude on and erode natural coastlines, severely reducing mangrove, salt marsh and sea grass habitats
- The cost of dealing with these impacts will further strain coastal economies, and the future for people on tropical coasts in 2050 will be substantially more bleak than at present."

Provided by United Nations University

Citation: Zone tropical coastal oceans—manage them more like land resources, scientists say (2014, July 2) retrieved 11 May 2024 from <https://phys.org/news/2014-07-zone-tropical-coastal-oceansmanage-resources.html>

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.