

IMPACTS OF THE 2004 TSUNAMI DISASTER ON THAILAND'S MARINE PARK TOURISM: WHAT DID WE LEARN? (Working Paper)

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INTRODUCTION

Earthquakes and tsunamis are powerful forces that cause significant loss of life and property as proved by the Magnitude 9.0 Sumatra Earthquake and subsequent Indian Ocean tsunami on December 26th, 2004. Lacking any form of tsunami preparedness, mitigation, and warning systems, the countries surrounding the Indian Ocean suffered severe loss of human life, economic infrastructure, and natural resources. Approximately 250,000 lives were lost. Millions of people were relocated and are still struggling to re-establish their homes and recover their livelihoods. Overall property damage exceeded \$10 billion US (UNEP 2005).

In Thailand, the tsunami hit the Andaman Coast and the waves reached as high as 10.6 meters in some areas along this coast (DPRI 2005). The country's famous coastal areas for sun- and sea-seeking tourists were severely ruined. Economic shockwaves were felt throughout Thailand's tourism industry which generates revenue (classified in service sectors) that is 46.7% of the nation's Gross Domestic Product (GDP) (CIA 2005). Although lumping tourism revenue into service sector makes tourism hard to assess impacts on the coast, it does play major role in the national GDP. In a year after the disaster (FY2005 to 2006), Thailand's GDP generated by the service sectors dropped to 45.2% (CIA 2007). Consequently, Thai are significantly interested in gathering information about how natural disaster impacts affect the tourism sector and how best to foster recovery.

The unprecedented damage also created a demand, especially among marine park managers and hazard mitigation professionals, for impact analysis of major coastal hazards on marine park natural resources and ecosystems. This analysis is imperative given the strong linkage of marine parks, and their rich assortment of ecosystem services, to coastal community social and economic well-being, particularly with regard to park tourism. This relationship was examined for marine national parks (MNPs) along Thailand's Andaman coast in the aftermath of the 2004 tsunami.

METHODOLOGY

The impact analysis involved a case study focused on four principal issues: the impacts of the tsunami on marine parks and how these affected the tourism economy; the recovery efforts undertaken and their effectiveness; other actions that, if taken, might have improved preparedness and made recovery efforts more effective; and how marine parks might be made more resilient to natural disasters in the future.

The principal method used to examine these issues was a Delphi expert opinion process. The experts were selected using a 'snowball' process based on criteria that identified them as representatives of the expert community rather than randomly-picked individuals from a large domain. This process is thus different from a random-sample selection process used in public opinion polls. In other words, these experts were not a representative sample of the whole population.

The 20 experts came from six professions that were involved in the tsunami recovery efforts, including (1) academic researchers, (2) marine and coastal resource managers, (3) marine national park managers, (4) non-government organization staff, (5) tourism promoters and managers, and (6) tour operators. The different fields and affiliations of these experts assured good range of perspectives regarding the 2004 tsunami.

The information given by the panel was supplemented by field investigations, interviews, and spatial data collection and analysis in four marine parks with different degrees of tsunami impact (Department of Marine and Coastal Resources 2005). These MNPs included 1) Ao Phang Nga, 2) Hat Nophrat Thara – Mu Ko Phi Phi, 3) Mu Ko Surins, and 4) Laem Son (Figure 1).

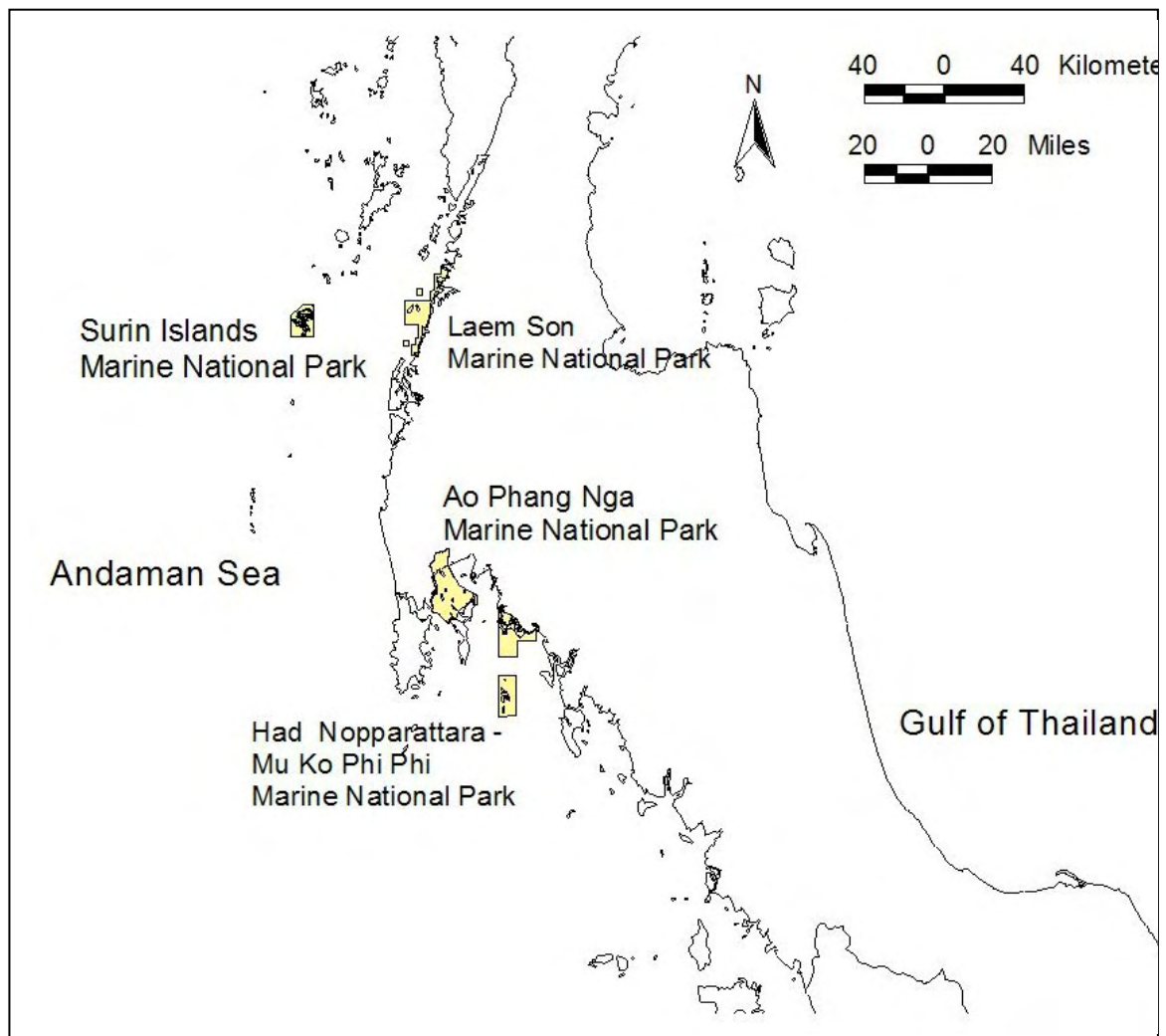


Figure 1. Locations of the four marine national park study sites.

WHAT DID WE LEARN?

The experts identified a variety of tsunami impacts, response and recovery in MNPs and classified them into four categories: (1) *natural resources and ecosystems*, (2) *built environment*, (3) *business community*, and (4) *social systems and human safety*. These tsunami impacts were also grouped into two impact categories based on sequence and time frame:

- 1) *direct or primary impacts* --- physical damage that happens when tsunamis sweep across coastal areas and attack coastlines and structures,
- 2) *indirect or secondary impacts* --- damage that are more distant from the event in both time and succession and may continue for many years (Heinz Center 2000).

According to the panelists, tsunami impacts on *natural resources and ecosystems* included changes in nearshore bathymetry and topography, impacts on mangrove, seagrass, and coral reef habitats, and intrusion of seawater into freshwater supplies. Impacts on the *built environment* were mostly direct including destroyed park offices and visitor facilities, damaged trails, and contaminated potable water wells. The impacts on *business community* were identified as all aspects of business damage that were not part of the built environment—loss of trained employees, customer records, and other tools of the trade. Some of these were direct impacts, but most were indirect impacts. Impacts on *social systems and human safety* were identified here as loss of life, psychological trauma, loss of employment, and individual and family stress.

Among all four categories, direct and indirect tsunami impacts to the *business community* were judged to have the most significant negative effects on tourism. However, the direct impacts of the tsunami on the *built environment* and associated infrastructure were also significant. Impacts on *social, health and safety* and *natural resources and ecosystems* also negatively affected park tourism, but to a lesser degree. Recovery actions taken to rebuild infrastructure and park-serving facilities inside and outside park boundaries were judged most effective at restoring park tourism operations; tourism recovery actions associated with natural resources, the business community, and social systems were judged to be only moderately effective.

Numerous barriers and constraints, some natural, but most human-caused, to marine park tourism recovery were identified. These included a harsh monsoon season and the isolation and extent of destruction of remote MNPs. Constraints were also related to trauma and fear, as well as superstitions, which led to many skilled workers leaving the area. Constraints included uneven and sometimes redundant aid distribution; the lack of skilled aid personnel; fragmentation of relief efforts among competing agencies and NGOs; undue focus on who gets credit among aid-providers; bureaucratic delays and paperwork; and outright favoritism and corruption.

Additionally, the findings revealed that direct and indirect impacts affect MNPs differently. Three of the four parks examined here had significant direct tsunami impacts. Laem Son and Mu Ko Surin MNPs facilities and natural attractions were severely damaged, resulting in a more than 80 percent reduction in visitors for FY 2005 (Department of Marine and Coastal Resources 2005; NPWPCD 2005). Ao Phang Nga MNP, on the other hand, did not sustain any direct tsunami impacts, yet visits also declined more than one-third there, suggesting a negative “halo effect” from damage in the surrounding area and in other parks. On the other hand, Mu Ko Surin MNP is a park that benefited from its low intensity development and high degree of remoteness. Although its facilities were heavily damaged, minor amounts of man-made debris was found on its beaches and seafloor surrounding the islands. In contrast, at Hat Noppharat Thara – Mu Ko Phi Phi MNP, which has extensive private development in areas adjacent to the park, direct wave impacts were high, as were indirect debris-related damage on land and in the water. These kinds of differences suggest that MNP hazard vulnerability

assessments need to examine potential impacts from sources both inside and outside park boundaries.

CONCLUSION

This study compiled an idealized set of preparedness, response, and recovery actions that proved useful for integration with other existing hazard vulnerability assessment models (see Wood et al 2002; NOAA 1999) in designing MNP hazard preparedness planning and mitigation guidelines. The process of designing the guidelines, which involved stakeholder participation, will help marine parks and nearby communities evaluate their vulnerability, set priorities for mitigation and preparedness, and become more resilient to hazards in the future.

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