

EXECUTIVE SUMMARY: BLUE WATERS IN PERIL

Thailand's marine and coastal resources are abundant and unique. Its two distinct coastal areas—the Gulf of Thailand in the South and the Andaman Sea in the Southwest—feature impressive natural resources, including mangrove forests, coral reefs, beaches, and wetlands. These resources play important roles in Thailand's tourism industry, fisheries, trade, and local livelihoods. In addition, these resources also provide specialized services, such as improving water quality, stabilizing shorelines, and providing a breeding and nursery ground for aquatic species, including commercially important fish.

The coastal areas, however, also are popular locations for tourism and urban and industrial development. Over the past decades, Thailand's marine and coastal resources have come under threat as the population in the coastal provinces has grown and economic activities such as tourism, ocean transportation, and marine fisheries and aquaculture have increased. As a result, resources are being lost or degraded.

Specifically, coastal wetlands are under threat. While some wetlands receive protection as designated RAMSAR sites, many continue to be impacted by the effects of coastal development, agriculture, and tourism. Mangrove wetlands, of which large areas have been lost during previous periods of large economic growth, today remain under pressure. Actual coverage, however, is increasing, thanks to recent mangrove replanting efforts. The ecological value of replanted mangroves in terms of biodiversity has not yet been determined.

Coral reefs also are at risk. A recent assessment concluded that over 80 percent of reefs in the Andaman Sea and over 50 percent of reefs along the Gulf Coast are rated between "fair" to "very bad" and are at risk of continued degradation. Sea grass beds, overall, remain very healthy. Pressures on endangered species such as whale sharks and dugongs, however, have not lessened. And despite several years of turtle protection programs, the number of nesting sea turtles is still in decline.

Fish stocks are also under increased pressure. Thai marine fish resources have traditionally been rich and abundant and marine fisheries contribute substantially to the country's GDP. In 2003, for example, Thailand accounted for three percent of the world's total fish catch. Of the total marine fisheries, 70 percent comes from the Gulf of Thailand and the remainder from the Andaman Sea.

Total fish catch appears to be in decline and fishermen have to spend increased amounts of time to catch the same amount of fish as before. The amount of "trash fish"—commercially unimportant fish, including juveniles—per catch is also increasing. The decreasing availability of fish combined with increased competition is putting additional pressure on small-scale fisher folk and is leading to conflicts with commercial operators. Despite economic growth elsewhere in the country and along the coast, pockets of poverty continue to exist in coastal communities.

While marine capture continues to be an important industry, aquaculture, and especially shrimp farming, has grown rapidly over the past years. Shrimp farming has grown from 26 percent of total coastal aquaculture production in 1984 to 47 percent in 2003 and in area has reached the Government limit of 500,000 rai (80,000 hectares) across the country. Aquaculture products are valuable. While aquaculture production was about a quarter of total marine production in 2003, the total value for each was about the same.

Other important natural resources in the coastal and marine provinces are surface and ground water. Freshwater is limited and over-exploitation of ground water is a major cause of land subsidence. Marine-based pollution and run-off from the land have resulted in several locations with degraded or severely degraded water quality. Red tides, caused by excessive algae growth and a result of pollution, are now yearly events, and the growth in marine transportation has led to problems related to accidents, oil spills, and invasive species.

Erosion has become one of the primary environmental challenges. In many areas, the coastline is eroding at a rate of more than one to five meters per year, resulting in a loss each year of an area equivalent to two square kilometers, worth over THB 6 billion or about US\$ 150 million. While combating erosion will take major investments, the costs of not taking action in terms of a loss of land, loss of utilities, and impacts on communities, will likely exceed those investment costs.

Finally, natural hazards and expected impacts of global climate change need to be addressed. Natural hazards frequently occur and can cause severe damage to coastal resources.

Climate change and an associate rise in global sea level are expected to inundate coastal areas and negatively impact livelihoods and GDP. In particular impacts in the flat and



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low-lying Gulf area, including Bangkok, are expected to be high.

While the environmental impacts from unsustainable resource management are considerable, the losses and degradation of ecosystems and habitats also represent an economic loss. Mangrove or sea grass bed losses, for example, decrease the shoreline's natural protection and increase impacts and costs associated with natural disasters. The economic value of mangrove loss alone is estimated to be around THB 12,000 million or US\$ 300 million per year. And with about 57 square kilometers (or 37 percent of the total coral reef area) of rich coral reef categorized as degraded or very degraded, coral reef deterioration represents a loss in potential value of about THB 340 million or US\$ 8.5 million each year. Even without the additional costs of over-fishing, the total environmental costs of unbalanced development are in the range of THB 20 billion or US\$ 500 million per year. This loss in potential benefits amounts to about 6 percent of the total economic benefits generated by the coastal fishing and tourism sectors. Additional economic costs stem from illegal or unregulated activities. Exact costs for Thailand from such activities have not been estimated, but worldwide, illegal practices related to forests, fisheries, and wildlife have been documented to cost the global economy more than US\$ 30 billion per year.

The increasing pressures from industrial and urban development, tourism, fisheries, and marine transportation are linked to rapid population and economic growth in the coastal provinces. While this overall growth brings short-term benefits to the people of Thailand, it must be combined with a sustainable management of the natural resources in the coastal areas to preserve those resources—and its values—for current and future uses and generations.

National and sector policies and regulations for protecting and preserving resources are in place, but their effective implementation is hindered by overlapping and outdated laws, a lack of coordination among agencies, and limited resources. With continuous and growing pressures on resources an integrated approach to coastal and marine resources management is required. Under the guidance of one lead agency, national and regional policies, regulations, plans, and activities must be coordinated. At the same time, local communities should participate in the planning and implementation of resource management plans.

Where established, protected area management is working relatively well and contributes to the preservation of mangroves and coral reefs. Increasingly, communities are involved in the management of their marine and coastal resources. The number of community organizations is increasing and comanagement projects are underway.

Regional consultations that were part of the development of this Monitor confirmed the necessity and benefits of involving local stakeholders and making them part of the decision-making process and implementation.

For a sustainable management of Thailand's coastal and marine resources the following key challenges lie ahead.

Challenge 1: Reducing coastal erosion and adverse impacts of natural hazards... A broad approach that combines engineering solutions with other efforts such as wetland rehabilitation, reducing groundwater extraction, and implementing development setbacks and zoning, is required. This approach must include strategic and regional plans that involve stakeholders and address concerns about cost sharing and implementation. The Department of Marine and Coastal Resources (DMCR) and Department of Mineral Resources (DMR) could take the lead on developing the strategic plan and ensuring the necessary budget for its implementation. In addition, the adequacy of Environmental Impact Assessments in controlling erosion—especially considering that a large part of coastal erosion is also a natural process—must be assessed. Technical information about erosion needs to be collected, analyzed, and made available to the public. Finally, a system for warning and responding to natural hazards in the Gulf area needs to be developed, as well as strategies for preventing and mitigating expected impacts of global climate change.

Challenge 2: Establishing sustainable fisheries... Establishing healthy fish populations that could support the fisheries sector requires a stepped-up approach to managing this resource. Economic instruments and the allocation of fishing rights (e.g., Territorial User Rights for Fishers, TURFs) should be explored to regulate fisheries and promote better management. Other measures include rehabilitating fish stocks and habitats by increasing seed bed areas and providing conflict management between small and commercial fishers. Finally, the Fisheries Act must be reviewed and updated to reflect necessary policy changes.

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Challenge 3: Stepping up the oversight and monitoring of development activities... Tourism development and industrial and port activities are among the major threats to marine and coastal resources along the Thai coast. Priority actions include: Stepping up the oversight and management of area development, including monitoring pollution loads; Controlling shrimp farming through a third-party audit system; Increasing capacity of local governments and other agencies responsible for the implementation and monitoring of the Environmental Impact Assessment process and Environmental Protection Areas; Monitoring the experiences of the Designated Area for Sustainable Tourism Administration (DASTA) with an integrated approach to resources management and tourism; Monitoring water quality and ecosystems in target areas; And increasing coordination among agencies to manage freshwater resources.

Challenge 4: Increasing local capacity and public participation... Community participation is crucial to successful management of marine and coastal resources. Enacting the draft Marine and Coastal Resources Management Act will set the framework for communities to have the right to manage their own resources and access to information and funding. In addition, active and meaningful public participation can be supported by increasing capacity through environmental education, examining and strengthening the role of local governments in coastal management, recognizing and respecting traditional community rules and regulations, and exploring financial options to support active participation of local communities.

Challenge 5: Establishing integrated management... A strengthening of the institutional framework and reviews and improvements of existing legislation are needed to address the previous challenges. Specifically, national and sector policies, laws, regulations, management approaches, and stakeholders' interests must be coordinated. This will require enacting the draft Marine and Coastal Resources Management Act and enabling DMCR to develop the capacity to lead this effort. Moreover, greater authority needs to be extended to local governments working closely with key stakeholders, combined with policy guidance and law and regulation support from central government agencies such as MONRE, DMCR and the Coast Guard. Finally, improved monitoring and evaluation, including the collection and sharing of reliable data is also required.

The way forward... Many plans, agencies, capacity, and resources exist within the country to address the challenges identified. Protecting and enhancing Thailand's considerable wealth in coastal and marine resources, however, will require strong leadership at the national level to promote policy reforms, as well as local champions and active local communities to implement the action agenda associated with these policy reforms. Specifically, enacting the draft Marine and Coastal Resources Management Act, enabling strong leadership by the DMCR, and providing local governments with the authority to act and the support of central agencies would provide both the legal basis as well as the required leadership to bring about an integrated and participatory approach to coastal and marine resources management. In addition, regular monitoring and reporting on results, as well as raising awareness among the general public will be key.