

Site-specific and Immediate Actions: Andaman Coast, Thailand, from Phi Phi to the Khao Lak area, including coasts and offshore

(Note: Site-specific recommendations for actions following the December 2004 tsunami in SE Asia have been made in separate reports. In this report, we include recommendations for sections of the Andaman Coast, Thailand.)

By Dr. Deborah Brosnan, November 2005

Debris removal, marine ecosystem rehabilitation (in coral reefs and mangroves), and sound management are critical elements in rebuilding the coastal communities devastated by the SE Asia tsunami. Leveraging the expertise and commitment of the many scientists and groups working in the region is central to creating successful and sustainable outcomes. We have provided key recommendations in the main section of the report and here we identify urgent and more site-specific needs and recommendations. These are based on our visits to different areas and projects. (Note that not every project was visited.) Our recommendations fall primarily under two main categories.

- Urgent and unmet needs
- Mid-term needs and recommendations

Summary

The response of local scientists, individuals, and groups as well as international scientists and volunteers has been tremendous. There has been considerable success in debris cleanup and reef repair at several sites. But others areas have received scant attention.

Urgent Unmet Needs

- Debris assessment, cleanup, and restoration planning is urgently needed in the Khao Lak area. While this is a major effort, it is a practical and solvable issue that should be supported at the appropriate logistical, financial, and technical scale.
- To facilitate, coordinate, and oversee this work, we recommend supporting a coordinator and coordination efforts in the Khao Lak area.
- We recommend supporting a logistical and technical coordinator on a coast-wide scale to liaise among groups, serve as a conduit for information, and as a link to funders and opportunities.
- We recommend seeking out the needed expertise (locally by preference but nationally and internationally where appropriate) in debris removal, restoration, and other issues. Provide training in these skills.
- We recommend that all continue to encourage the information sharing and cooperation among local, national and international scientists that has been a hallmark of this effort.
- We recommend providing assistance to existing scientific, NGO, and business efforts as they move into the next phase of their work. (for example, Dive Camp Phi Phi is preparing to expand from debris clean up to coral reef monitoring) and especially when these ventures create business, local income, and environmental stewardship.

- We recommend convening scientists, managers, NGOs, and others to synthesize current information, assess needs, and develop priorities for the future. Priorities may include restoration, research, conservation planning, training, sound ecotourism, etc. Assist in turning those priorities into fundable proposals.
- We recommend evaluating the potential for coral reef and other marine ecosystem restoration at the level and scale that is meaningful and likely to prove successful. Individual projects have much to offer but the scale of this issue is too large for single efforts. Develop a scientifically sound and feasible approach that uses good design, monitoring and adaptive management. This will help to avoid the poorly considered efforts that many scientists fear and have cautioned against.
- We suggest identifying top priorities and projects for funding. Identify scientists, projects, and other community efforts that can be supported in implementing these efforts.

Creating long term sustainable communities and ecosystems

- Large scale multi-disciplinary planning will reduce risks in the future. Scientific results indicate the importance of coral reefs and natural systems in protecting the coast, and in saving lives, and property (see Fernando et al. 2005). Rebuilding coastal communities (infrastructure and capital) and restoration of marine ecosystems should be developed so as to minimize risks to people, property, and marine ecosystems in the future. This requires a thoughtful process that brings together the appropriate national, provincial, local governments, technical expertise and local interests.

Overview and Recommendations

There has been much success in assessment, debris cleanup, and reef repair at several coral reef sites along the Andaman coast. Great credit is due to the individual scientists, dive operators, divers, and volunteers who organized and carried out the work, and to the Government and several organizations who made it possible through their financial and technical support. But much work remains to be done and, in some place, the effort has yet to begin in any organized fashion. These regions need financial support, coordination support, and technical expertise to create and implement action plans. Meeting these needs would make scientists, NGOs, and business groups more effective and successful.

Debris Removal

Current Situation

Ninety-five percent of sites surveyed have been successfully cleaned up, primarily around Phuket and Phi Phi (Phongsuwan pers. comm.). Other areas have yet to be surveyed. These un-surveyed areas are often in places that suffered severe damage or that are more remote. This includes the greater Khao Lak area (including Nang Thong, Bang Niang, Khuk Khuk, Leam Parkang and further north). Much of this region was devastated by the tsunami and is badly in need of dedicated attention. Several videos show hundreds of tons of debris being dragged into the nearshore environment.

A full debris assessment has not yet been carried out along the greater Khao Lak coastline. To date there have been various small-scale efforts by hardworking NGOs, scientists, local diver operators, divers (all mostly volunteer-based) and others to assess damage, clean beaches, and formulate plans. For instance, individual beach cleanups were organized by the Tsunami Volunteer Network, and preliminary attempts were made to assess and locate debris offshore. But these were of limited scale. Various scientists have provided written and onsite input and

advice to individuals and groups (e.g., Brosnan, 2005; Meadows, 2005). But overall, the work has been hampered by the lack of support, expertise, and a clear strategy. Support and coordination at the appropriate scale will help alleviate the challenges. There is a lot of energy and willingness to carry out debris removal and restoration but this energy is turning to frustration because of inadequate support (logistical, financial, or technical) for the work.

Why is this assessment and cleanup needed?

The nearshore and offshore seabed is a repository of debris. This wreckage poses a health, safety, and tourism threat to the region, in addition to damaging marine ecosystems. The debris is also an ongoing reminder of the sad losses. Debris continues to wash ashore. In August, we observed debris at Laem Phom (which had previously been cleaned) and other beaches strewn for miles along the beach and in the water. Marine and coastal tourism is an economic mainstay of the region and the debris poses an economic threat at time when income is much needed.

Coordination

Coordination is a challenge at the best of times, but it is especially more difficult after a major disaster. Along the Andaman Coast, there are several excellent individuals and groups working to assess damage, clean up ecosystems, and restore habitats. Some are doing so in ways that develop skills and create employment. For many this is a new experience. Some lack the technical skills, others are unaware of the marine regulations or policies, and others need logistical support. Stronger communication among the groups would benefit all, but particularly those that are struggling to develop programs and those that need information on technical issues, regulations, and funding. A dedicated coordinator can identify the issues, provide advice, connect skills with needs, foster synergistic approaches among groups, liaise among scientists, organizations, and funders, and coordinate main projects. A dedicated scientific and technical coordinator is needed for the Khao Lak area and another one is needed for more coastwise efforts. Coordinators should have the needed local knowledge, expertise, and credibility.

Skills and Expertise

Environmental assessment, debris removal, and ecosystem restoration require several scientific and technical skills. Local scientists are contributing their expertise but many are stretched among several post-tsunami projects along the coast. In other cases (e.g., large-scale debris removal), new and different skills are needed. We recommend clearly identifying the needs and then seeking out the required expertise (locally by preference but internationally where appropriate) in debris removal, restoration, and other issues.

The local scientific, business and other communities have, in general, been extraordinarily open and welcoming of outside efforts of scientific and volunteer assistance. We recommend continuing to encourage the information sharing and cooperation among local, national and international scientists and efforts and particularly in ways that create opportunities for local scientists, students, and others. The work of scientists provides information that is valuable for the local marine ecosystem and has applications for disasters worldwide. We recommend supporting the scientific work and ensuring that the results are made available to those who can use them in planning, management, and policies.

There are several successful efforts along the coast and on offshore islands (e.g., Phi Phi) that are ready to advance into a more organized and sustainable effort. These efforts should be identified and helped as they progress.

Priorities and Actions

Scientists and others working in the marine environment have learned much in the year since the tragedy. It is approaching time to evaluate that information, apply lessons learned, and develop new priorities and action items. We recommend convening scientists, managers, NGOs, and others to synthesize current information, assess needs, and develop priorities for the future. Priorities may include restoration, research, conservation planning, training, sound ecotourism, etc. We also recommend assistance in turning those priorities into fundable proposals.

Scientists, NGOs, Individuals and Others

Below are some of the local individuals and groups whom we've met and worked with as well as some international scientists. All are working on tsunami coral reefs and coastal issues, and can be reached for further information.

Dr. Niphon Phongsuwan (Marine Biology Center) and other scientists and staff (including UNDP staff). Activities: scientific assessment, debris removal, and restoration

Dr. Sakanan Plathong, Prince Songkla University. Activities: scientific assessment, and restoration. (Also see, Sea Foundation, see below)

International scientists, in addition to **Dr. Deborah Brosnan** and **Lisa Sztukowski** (TRAF/SEI USA), include **Dr. Dwayne Meadows** (USA) and **Dr. Caroline Sachs** (Germany), **Eko Lapp** (USA, Dive Camp Phi Phi)

NGO and Organizational efforts

Vittayen Muttamara and Sea Foundation Activities: assessment, restoration, artificial reefs, and conservation

Tsunami Dive Camp, Phi Phi (Andrew Hewett, Director) Activities: debris removal, monitoring, and restoration (volunteers and employment for local people)

Ecotourism Center (Reid Ridgeway, Director) Activities: ecotourism marine and dive training for local people

Tsunami Volunteer Network Khao Lak (Stuart Robbens, environmental coordinator) (beach, seafloor, reef, debris removal and restoration)

JM Fund Activities: coral reef restoration

Joe Hue (Similan Safaris) Activities: assessment, clean up, and conservation