



OUR PLANET

The magazine of the United Nations Environment Programme - December 2007

A large, semi-transparent musical score is overlaid on a background of a teal ocean with white-capped waves. The score consists of several staves with various musical notes and symbols, including a treble clef and a key signature of one sharp (F#).

SYMPHONY OF THE SEAS

The Marine Environment

OUR PLANET

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* All dollar (\$) amounts refer to US dollars.

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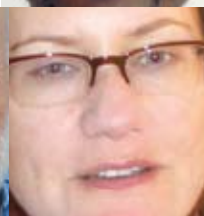
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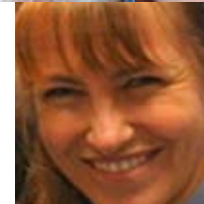
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tipping points

by Gerald Marten and Amanda Suutari

Mangroves — the ‘rainforests by the sea’ — cover one-quarter of the Earth’s tropical and subtropical coastline. Occupying two worlds, as the interface between land and sea, they are vital for healthy coastal ecosystems, which in turn support healthy fisheries — and, indeed, themselves act as nurseries for fish. They increase the resilience of coasts, protecting them from erosion, tropical storms and tidal waves. They trap sediment running off the land, safeguarding seagrass beds and coral reefs from siltation. And they function as a natural ‘supermarket’, providing necessary materials to those who depend on them — such as fruits, honey, other foods, fuelwood, medicinal plants and construction material. But they are also among the world’s most threatened habitats and their rate of disappearance is accelerating with the conversion of coastal lands for development, charcoal production, tourism, and the controversial practice of shrimp aquaculture.

From 1975 to 1993 about half the mangroves along Thailand’s 2,560 kilometre coast were lost. This had devastating effects, for example, in Trang province, some 800 kilometres south of Bangkok on the western shore of the Andaman Sea. Until the 1960s, its coastal villages largely subsisted on fishing while depending on the mangroves for medicinal plants and materials such as thatch for housing and fishing gear. Then the mechanization of fishing set into motion a range of effects, which seriously undermined the villages’ natural and social capital. Large commercial trawlers violated the 3km coastal zone where the villagers fished. Their destructive gear and methods damaged coral, scraped the seabed, and cleared out young fish which had not yet reproduced, but villagers were afraid to confront them.

At much the same time, mangrove forests were opened up to concessionaires who began clearing them for charcoal production. Some of the poorest villagers saw no other option than to accept low-paid jobs cutting mangroves for concessionaires or on commercial trawlers, destroying their own resource base. Villagers also began clearing the mangroves themselves, with the

attitude that ‘if I don’t cut them, someone else will’. Women began to look for unskilled, low-paid work in factories, leaving children behind with aging grandparents in the village, further undermining the social fabric.

As the fisheries declined — under the impact of both the trawlers and mangrove destruction — villagers had to go further out to sea, and resorted to more destructive methods to catch dwindling numbers of fish — such as using dynamite, cyanide and pushnets which scraped the ocean floor, damaging sea grass beds, coral reefs and other marine habitats. They also had to invest in more expensive equipment to ‘keep up’ with others in the race for dwindling fish. Some resorted to selling off land. The coastal communities were caught in a trap where day-to-day survival strategies eliminated or reduced their future options: the result was a self-reinforcing downward spiral into increasing poverty, and social and environmental degradation.

In 1985, a small organization called Yadfon (‘raindrop’ in Thai) began to work with the coastal villagers. Its founders, Pisit and Ploenjai Charnsnoh, talked for months with the people and the local imam, building confidence and identifying urgent needs. Together they dug a community well and set up a cooperative programme to help fishers buy fishing gear and engines for their boats, sell their daily catch at fair market prices, and reduce their dependence on middlemen. They established a revolving fund to give small interest-free loans to the poorest, most indebted villagers helping them to set up income-generating projects like small-scale aquaculture cultivating mussels, oysters, and grouper.

While all this was taking place, the villagers came up with the idea of reviving their badly degraded mangrove forests. A group of villages created a 235-acre community-managed




forest and sea-grass conservation zone, the first of its kind in Thailand. They initiated no-fishing areas, discouraged the use of cyanide and dynamite, and banned pushnets. Sea grass was replanted in a lagoon, and mangrove seedlings in degraded areas of the forest.

Now there are about ten such community-managed forests, ranging from 12 to 700 hectares, each managed by the group of villages that surround or depend on it. While each has its own rules of management, not one allows shrimp farms within its boundaries because there is general agreement that these endanger the mangroves. Over the years, the forests have begun regenerating, and fisheries have revived as a result. In 1992, Yadfon co-founded the Mangrove Action Project, an international network of some 800 conservation groups and academics from 60 countries working to promote mangrove conservation.

Creating the community forests and related projects began to transform attitudes among villagers who had forgotten traditional ways of working together, and helped them rediscover a sense of engagement, solidarity, and confidence. As their unity developed, leaders began to emerge, and newfound talents began to shine. Successes gave the people confidence that they had the power to help themselves instead of perceiving themselves as victims of an unfair system, waiting for government rescue. Building assets gave them a sense of ownership over their shared resource, and an incentive to band together to protect them from outside interests. Investing in their future motivated them to fight for it. Fishers began confronting trawlers who violated the 3km coastal zone and lobbied the government to enforce it. And when a local corporation spilled poisonous palm oil into a local waterway, villagers took the issue to provincial authorities, eventually forcing the company to pay compensation.

The creation of the mangrove forests was thus an Eco Tipping Point: a lever setting in motion a cascade of far-reaching effects that tipped the local community and environment from a vicious cycle to a virtuous one. The momentum switched from destruction to recovery and sustainability. The invasion of commercial interests into communal resources — the largely simultaneous mechanization of fishing and the arrival of charcoal concessionaires — was a negative tipping point that locked the people into a vicious cycle of declining resources and an accelerating race to get what little remained. Their prospects seemed so bleak that recovery would have seemed a fantasy.

But all this was reversed, and a virtuous cycle initiated, when villages began creating community mangrove forests and seagrass beds. The fishery began to restore itself, and the mangroves began to supply useful products again, reinforcing the community's commitment to protecting and managing them. Using simple wooden traps or nets, children can now earn 250-300 baht from catching crabs in the mangrove in an afternoon — the equivalent of what was once a whole day's earnings cutting mangrove trees for concessionaires. Instead of being locked into depletion, villagers are locked into conservation, as the financial incentive to preserve mangroves now outweighs the incentive to destroy them. Similarly, in a study of 500 families from 1991 to 1994, the total fish catch rose by 40 per cent. And as the fishers spent 3-4 hours fewer in their boats and did not go out as far, their net income increased by 200 per cent. They could return with full boats without using dynamite or push nets. Fish stocks recovered faster, making their jobs even easier. And better incomes meant there was less need to migrate from villages.

Eco Tipping Points, such as these, offer a new paradigm for restoring communities, both natural and human. Conventional approaches to ecological problems — from piecemeal micromanagement, to techno-fixes, to top-down regulation — often fail. But with the right levers, the same forces that endanger environments and communities can be harnessed to heal them. 



Marine Environment: Useful Links

This page contains links to websites from governments, international organizations, non-governmental organizations, businesses, media, and other groups from around the world to help you research issues related to the marine environment. We have compiled these links from our own review of the vast amount of information available on the Internet to help you to find the most relevant sources for your research. Our Planet magazine does not, however, endorse the viewpoints of any of the groups to which we link, and we cannot guarantee the accuracy of the information posted on these sites. Rather, we hope to provide you with a broad range of opinions and perspectives.

International bodies

www.imo.org

The International Maritime Organization, which first met in 1959, was created in order to develop and maintain a comprehensive regulatory framework for shipping. Its remit today includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping.

<http://www.cms.int/>

The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS) is an intergovernmental treaty which aims to conserve wildlife and habitats on a global scale.

www.un.org/Depts/los/doalos_activities/about_doalos.htm

The UN's Division of Ocean Affairs and Law of the Sea (DOALOS) reports back to the General Assembly on matters relating to the law of the sea and ocean affairs. It also formulates recommendations to the Assembly and other intergovernmental forums aimed at promoting a better understanding of the UN Convention on the Law of the Sea.

www.fao.org

The website of the FAO's Fisheries and Aquaculture Department contains information on fisheries statistics, fish utilization, trade & fisheries, fisheries governance, ecosystems and fisheries research.

www.ioc.unesco.org

UNESCO's Intergovernmental Oceanographic Commission (IOC) provides UN member states with an essential mechanism for global cooperation in the study of the ocean. It assists governments to address their individual and



Out there

Blog Action Day

On 15 October, 20,600 blogs around the globe wrote about environment-related topics as part of the first-ever edition of Blog Action Day, an event partnered by UNEP. Nineteen of the "Technocrati Top 100 blogs" took part in the action, including Mashable, Treehugger and the Official Google Blog. EU Environment Commissioner Stavros Dimas — himself a blogger — took part, holding a special live internet chat to coincide with Blog Action Day.

www.ecotippingpoints.com

The ecotippingpoints website features nearly 100 environmental success stories collected from around the world by a team of scientists and journalists. The stories display a diversity of detail but have something important in common: a 'lever' referred to as an 'Eco tipping point' — that is, a community-based process switching environmental decline to a course of restoration and sustainability. The website offers lessons from the stories while explaining how Eco tipping points work and what it takes to create them.

<http://green-blog.org/>

Green Blog is a multi-author environment blog providing green news, advice and insights from around the world. It includes features such as 'Green consumer', 'Business & politics', 'Green quote of the week', and a 'Take Action!' category.

www.unep.org

www.unep.org/regionalseas - Regional Seas – The Regional Seas programme, launched in 1974, aims to address the accelerating degradation of the world's oceans and coastal areas through the sustainable management and use of the marine and coastal environment. It does so by engaging neighbouring countries in comprehensive and specific actions to protect their shared marine environment. Today, more than 140 countries participate in 13 Regional Seas programmes established under the auspices of UNEP. Along with the regional pages, the Regional Seas website also links to thematic pages such as the Marine Litter website.

www.gpa.unep.org - Global Programme of Action for the Protection of the Marine Environment from Land-based Activities – The only intergovernmental programme that addresses the links between freshwater and the coastal environment. This is a key issue, as some 80 per cent of the pollution load in the oceans originates from land-based activities. As well as comprehensive information on the GPA, the webpage includes a link to the "networks of practitioners" — an online interactive meeting place for stakeholders to share their experience and ideas on various issues as they relate to the GPA.

collective ocean and coastal problems through the sharing of knowledge, information and technology and through the coordination of national programmes.

<http://www.coastalmanagement.com/>

Coastal Zone Management (CZM) is an Australia-based company providing consultancy services focused on the management of the coastal zone. Its clients include the Australian National Oceans Office, the Dubai Municipality, Taiwan's Ministry of the Interior and the UNFCC secretariat in Bonn (Germany).

Ocean to ocean

www.ccamlr.org

Antarctic: The website of the Commission for the Conservation of Antarctic Marine Living Resources, whose objective is to conserve marine life of the Southern Ocean.

www.pame.is

Arctic: Information on the Protection Arctic Marine Environment (PAME) — whose mandate is to address policy and non-emergency pollution prevention and control measures for the protection of the Arctic marine environment from both land and sea-based activities.

www.helcom.fi

Baltic Sea: The Helsinki Commission, or Helcom, works to protect the marine environment of the Baltic Sea from all sources of pollution through intergovernmental co-operation between Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.

www.blacksea-commission.org

Black Sea: The Black Sea Commission provides expertise and information on protecting the Black Sea from pollution, conserving biodiversity and managing fisheries.

www.ospar.org

North-East Atlantic: The official website of the 1992 OSPAR Convention — the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic.

www.ropme.com

Middle East: ROPME (the Regional Organization for the Protection of the Marine Environment) brings together Bahrain, I.R.Iran, Iraq, Kuwait, Oman, Qatar Saudi Arabia and the United Arab Emirates, to cooperate in "protecting their common marine environment in spite of the existing geopolitical boundaries".

www.sacep.org

South Asian Seas: The South Asia Co-operative Environment Programme (SACEP) is an inter-governmental organization established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region. Its member countries are Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka.

<http://www.sprep.org>

South Pacific: SPREP, the South Pacific Regional Environment Programme, is a regional organisation established by the governments and administrations of the Pacific region to look after its environment. It has grown from a small programme attached to the South Pacific Commission (SPC) in the 1980s into the Pacific region's major intergovernmental organisation charged with protecting and managing the environment and natural resources. It is based in Apia, Samoa, with over 70 staff.