

Following is a summary of a recent scientific study on land-based pollutants.

Watersheds and coral reefs: conservation science, policy, and implementation

Robert H. Richmond, Teina Rongo, Yimnang Golbuu, Steven Victor, Noah Idechong, Gerry Davis, Willy Kostka, Leinson Neth, Michael Hamnett, and Eric Wolanski
From *BioScience*, American Institute of Biological Sciences, 2007

“Coral reefs worldwide are being degraded by human-induced disturbances, resulting in ecological, economic, and cultural losses. Runoff and sedimentation are among the greatest threats to the coastal reefs surrounding high islands and adjacent to continental landmasses.” The study follows three case histories in Micronesia – Guam, Palau and Pohnpei – and concludes that coral reefs and other coastal marine environments extend into their watersheds, and should be managed as a continuous ecosystem. “Marine protected areas often will miss their targets of resource protection unless terrestrial protected areas are established and enforced. Simply put, terrestrial protected areas combined with marine protected areas create effective resource protection areas.” During the course of the study, the scientists recommended a set of scientifically based approaches for reversing the negative trends in reef health. Steps taken by the three Pacific island communities focused on managing the entire ecosystem and included relocating crops from upland rainforests to lowland areas, restoring vegetation in watershed areas to control erosion, halting the clearing of mangroves, and establishing a continuous protected area from the top of the watershed to the reef. One community is also considering a temporary ban on catches of plant-eating fish. The authors state, “Pacific islands, with intact resource stewardship and traditional leadership systems, have been able to apply research findings to coral reef management policies relatively quickly. Although the United States and other Western countries have a clear edge in technology and data availability, the lack of effective legislation, enforcement, political will, and extensive community-based support remains problematic for long-term environmental stewardship. Although the scale of human impacts on the reefs of Florida is quite different from the magnitude of the problems experienced in Micronesia, the lessons learned are still applicable.” The authors state that traditional ways of managing human interactions with the reef are still effective in modern times, listing Palau’s Marine Protection Act of 1994 as an example of new legislation for no-take areas based on traditional knowledge of spawning sites. As far as Western governments, the authors suggest that, in addition to a needed review of U.S. federal legislation, they follow the lead of traditional societies and consider granting near- and off-shore leases for community-based conservation, just as they do for fish cages and oil drilling. The authors say if coral reef resources are not better protected from land-based impacts, they will continue to decline. Contact: Robert H. Richmond, richmond@hawaii.edu