

Many MPAs have shops or stalls that sell marine curios and visitors often want to know if they can collect shells and pieces of coral from the beach. Marine curio collection is often discouraged, although sometimes the same species are used locally for food. It may therefore be difficult for an MPA manager to decide which activities are allowable. This sheet gives background information on the impact of marine curio collection and some guidelines on appropriate policies for an MPA.

Marine curios, and handicrafts or souvenirs containing marine products, are sold to visitors and tourists throughout the WIO, often in the vicinity of MPAs and in some cases within them, either by beach hawkers or even in shops managed by the MPA. Corals, molluscs with attractive shells, starfish and pufferfish are particularly popular.

Gastropods and bivalves have been collected for centuries both as individual or 'ornamental' shells and for shellcraft (jewellery and handicrafts that are made of shells). In the WIO, cowries from Zanzibar were historically traded as currency, helmet shells were exported to Europe for the cameo industry (carved jewellery), *Murex* spp. to India for button-making and the Black-lipped Pearl Oyster (*Pinetada margaritifera*) for mother-of-pearl. The shell business in the WIO is currently small compared to that of SE Asia, but nevertheless shells are collected in fairly large numbers for sale to tourists, for export and for some handicraft industries. Tanzania (e.g. Songo Songo), Mozambique (northern Provinces) and northern Kenya (Lamu Archipelago) are among the main sources. In many areas shell collection provides an important source of cash income for local communities, and also a source of food since some of the species are edible (e.g. *Lambis* spp.). Collecting is generally carried out by men, women and children on the reef flats at low tide, and men may also collect shells while snorkelling or diving.

IMPACT

For marine molluscs in particular, little is known about the status, population sizes and distribution of most species involved, and so the extent to which shell collecting poses a threat is poorly understood. Anecdotal evidence, particularly the observations of traders and retailers, suggests that many species are declining in size or becoming rarer, particularly those with the larger more attractive shells such as large cowries, helmet shells, the Giant Triton (*Charonia tritonis*), and the Great Green Turban (*Turbo marmoratus*). Increasingly in the WIO, shells for tourists are imported from other countries, even from as far away as SE Asia. Since the 1970s, populations are considered to have declined in Kenya, a country where the most detailed research has been carried out. Densities of gastropod species that are important in the shell trade have been found to be slightly higher inside the Marine Parks than outside, which suggests that overcollection may be occurring. Studies here have also shown that some of the most valuable shells are naturally rare.

Shells washed up on beaches are invariably damaged or have lost their shine and gloss and thus much of their value. Tourists and visitors nevertheless often find beach washed shells attractive. However, shells of dead molluscs have two roles: once broken down they contribute to the formation of sandy beaches (in some places beaches may consist entirely of sand made from shells) and they provide homes for hermit crabs. Shells destined for sale or as collector specimens are almost always collected from live molluscs which has a direct impact on populations. An additional impact from shell collecting is damage to the habitat, as collectors overturn rocks and corals on the reef flat in search of them.

MANAGEMENT

The lack of information on the impact of shell collection means it is difficult to determine the best management approaches. Collection of marine curios within an MPA is often banned or controlled, as part of general regulations prohibiting the collection of living animals. In most countries, live molluscs can only be collected and sold under licence (usually from the Fisheries Department), although in some, such as Mozambique, collection for subsistence purposes is unregulated. Curio shops usually require licences, but many beach vendors avoid licensing and there is little enforcement. A few countries protect certain species under national legislation. The Seychelles has established four Shell Reserves, specifically to protect molluscs valued for their ornamental shells, but these have not been actively managed and data are not available to assess their impact.



Opportunistic shell stall set up inside the Dar es Salaam Marine Reserve, Tanzania.

S. Wells

International trade in some marine curios is regulated, and MPAs should be aware of this and inform visitors. Stony corals and giant clams are listed in Appendix II of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) which means that export and import is allowed but only with the appropriate permits. Turtle products, such as carapaces and tortoiseshell jewellery (made from the shell of hawksbill turtles) were once widely sold but their trade is now strictly controlled; all marine turtles are listed in Appendix I of CITES which means export and import is prohibited.

KEY POINTS FOR THE MPA

- ❑ Ensure that regulations concerning marine curio collection in the MPA are in place, are clearly understood by all MPA staff and are posted in public for tourists and local people.
- ❑ Discourage tourists from collecting shells while snorkelling or diving and educate local boatmen so that they do not promote this activity; discourage collection of dead shells from beaches within an MPA, particularly whole large ones.
- ❑ Do not allow sale of shells, corals or other marine curios (particularly of CITES-listed species) in the MPA, either on the beach or in souvenir shops, as this gives a bad impression.
- ❑ If there is good evidence to suggest collection of certain species is sustainable and in line with the management aims for the MPA, allow this and explain how this is an 'eco-friendly' activity.
- ❑ Encourage research and monitoring on molluscs and other marine curios, involving local people and visitors where feasible.
- ❑ Provide information on molluscs, corals and other species used as curios so that visitors understand their importance as living animals.

Sources of further information

Marshall, N., Milledge, S.A.H., & Afonso, P.S. 2001. *Stormy Seas for Marine Invertebrates: trade in sea cucumbers, seashells and lobsters in Kenya, Tanzania and Mozambique*. Trade Review. TRAFFIC East/Southern Africa. Nairobi, Kenya.

McClanahan, T. R. 2002. The effects of time, habitat and fisheries management on Kenyan coral-reef associated gastropods. *Ecological Application* **12**: 1484-1495.

McClanahan, T. R. 2002. A comparison of the ecology of shallow sub-tidal gastropods between western Indian Ocean and Caribbean coral reefs. *Coral Reefs* **21**: 399-406.

Newton, L.N., Parkes, E.V.H., & Thompson, R.C. 1993. The effects of shell collecting on the abundance of gastropods on Tanzanian shores. *Biological Conservation* **63**: 241-245.

Wells, S.M. 1989. Impacts of the precious shell harvest and trade: conservation of rare or fragile resources. p. 443-454. In: Caddy, J.F. (ed.) *Marine Invertebrate Fisheries: their assessment and management*. John Wiley and Sons, Inc., New York.

Wood, E. & Wells, S.M. 1995. The shell trade: a case for sustainable utilization. In: Kay, E.A. (ed.) *The Conservation Biology*

of Molluscs. Occasional Paper of the IUCN Species Survival Commission, No.9. IUCN, Gland, Switzerland.

Wood, E. 2000. *The Marine Curio Trade*. Marine Conservation Society, UK. www.mcsuk.org

CASE STUDY

Shell collection in Kiunga National Marine Reserve, Kenya

Licensed exploitation is allowed in Marine National Reserves in Kenya, especially when it involves an important income-earning activity for local communities. This is the case for shell collecting in Kiunga which is a major activity in the period April–September, during the south-east monsoon when there is less fishing. About 20 women and two men collect molluscs (principally Tiger *Cypraea tigris* and Gold Ringer *C. annulus* cowries) on the seagrass flats. After collection, they are buried to kill the living animals, the flesh is taken out, and the shells are boiled to remove the smell and then cleaned. The Gold Ringer cowries are threaded onto chains for sale to a local dealer for around 3-7 US cents each. The dealer sells them to exporters in Mombasa or directly to tourists in Lamu, where they may fetch US\$3 per string. Tiger cowries are sold to the dealer for 8-30 US cents each, and are sold on in Lamu or Mombasa for about \$ 0.7-1.0 each, as ornamental shells.

Lobster fishers also bring home any attractive molluscs that they find while snorkelling, particularly tritons, murex, helmet shells and the Great Green Turban. These are usually boiled, the meat consumed, and the shells sold to the local dealer for 8-40 US cents each. The dealer can make over 100% profit, depending on the species. The Giant Triton is the most valuable species and, being very rare, can be sold to dealers for over US\$5 or directly on the street for \$13-26.

Given concerns that such activities might not be appropriate in an MPA visited by tourists, encouragement is being given to women to collect shells washed up on the beach, rather than live molluscs. Many buyers are willing to take these and so the women still receive an income.



Curio stall on beach adjacent to Diani Marine Reserve, Kenya.

S. Wells