MIND OVER MUSSELS:
RETHINKING MAPELANE RESERVE

The Sokhulu people know that when the *msintsi* tree is flowering, mussels are good and fat. They know the Zulu names for the rock ledges that mussels inhabit along approximately 30 kilometers of coast. Their ancestors have been harvesting mussels along this coast for years beyond counting and are buried in the nature reserve that is intended to protect it. Yet, for the past two decades, they have been called thieves and poachers and driven to harvest what they could get under cover of darkness (Harris et al. 2003:62–66).

Mussel shell middens on the coast of KwaZulu-Natal province where the Sokhulu people live date back 2,000 years (Horwitz et al. 1991:1), suggesting that residents have harvested and husbanded this resource for at least that long. They employed a system of rotational harvesting that allowed each mussel bed to recover for several years between uses. They occasionally closed the harvest season completely to preserve the mussel stock at vulnerable times, a tactic common in many scientifically managed fish and shellfish stocks. Before commercial forestry came to the region in the 1930s, women gathered mussels in the daytime, prying mature mussels from the rocks with a pointed stick, but foresters and loggers soon challenged their right to collect and drove them into hiding (Harris et al. 2003:64–66).

When Jean Harris, then a University of Cape Town researcher, arrived in the area in 1995, the situation for traditional mussel harvesters was dire. Harris had hoped, through her research, to determine a sustainable level of harvesting for the area's mussel beds. She soon realized, however, that the relationship of the Sokhulu community to the resource had been deeply distorted by the community's run-ins with outsiders. Her research into sound resource management would have to begin by grappling with the effects of this conflict. Clashes with vigilante foresters, fishers, and the Natal Parks Board–the body that exercised legal authority over the province's park and coastal resources–had made mussel collection a high-risk activity. It took place only at night, by men willing to chance being beaten or arrested. In fact, few young Sokhulu women had ever gathered mussels, though women were the traditional harvesters, and mussels were regarded as a high-quality food, especially for children (Harris et al. 2003:73).

The conflict can be traced to 1933 when commercial forestry first came to the area, but tensions escalated sharply with the establishment in 1984 of the Mapelane Nature Reserve–an area that the Sokhulu community claims to own. Mapelane Reserve was intended to protect a region of rich habitat and biodiversity and is one of several smaller parks that were combined in 1997 to form the Greater St. Lucia Wetland Park. This World Heritage Site encompasses almost 240,000 hectares, including the foothills of the Lebombo mountains, lakes, coastal forests, massive dunes, and productive estuaries. Offshore, the park's coral reefs are home to 991 fish species, nearly 85 percent of reef fish species native to the western Indian Ocean region (WCMC 1999). Mapelane Reserve is on the extreme southern end of the Greater St. Lucia Wetland Park and is not itself inhabited, but has tradi-

tionally supplied fish and shellfish to adjacent communities.

The Natal Parks Board (recently reconstituted as Ezemvelo KwaZulu-Natal Wildlife, or EKZN Wildlife) has a powerful stake in protecting the resources under its authority, but its mandate does not–or did not–extend to accommodating the subsistence needs of local people. The region is biologically rich and visually spectacular. Leatherback and loggerhead turtles nest on the beaches. Whales, dolphins, and sharks ply the waters. Flamingos and pelicans put on dramatic displays in the wetlands. At just two and a half hours from the city of Durban, St. Lucia draws up to one million tourists annually (WCMC 1999) and ecotourism is expected to bring 500 million rand (more than US$60 million) and 1,200 new jobs to the region in the next several years, as a new road from Durban is completed and a concentrated malaria eradication campaign bears fruit (SANParks 2002).

Governance Lessons from Mapelane Nature Reserve

Mapelane Nature Reserve on South Africa's northeast coast is a place of beauty, a refuge for wildlife, and a center of conservation. It is also a focus of conflict and contested rights. To tourists venturing north from Durban, the reserve is a haven of bird life, verdant forest, and unspoiled coast. But until recently, residents of the nearby Sokhulu Tribal Authority saw it only as a restricted zone where they were forbidden to harvest mussels along the rocky coast, in the custom of their ancestors. The conflict over resource access and tenure in Mapelane Reserve is not unique. It is mirrored in national parks and protected areas in many nations, and points to a conundrum in sustainable park management: How can parks work for—and be supported by—local residents, and yet still fulfill their conservation missions? Can park neighbors both use and help to preserve a park's biological assets? Or must they be kept out to safeguard the park's living legacy?

At Mapelane, the solution required a new relationship between park officials and the indigenous community. Sokhulu residents regained authority over mussel beds on a short stretch of coast. Their right to harvest mussels is now linked to their responsibility to demonstrate—in hard numbers—that the level of harvest is sustainable. The success of this agreement demonstrates that transmission of rights and responsibilities over park resources to local groups is one avenue to conflict resolution and greater equity, but that the transition must be negotiated with care.

- Co-management by park personnel and local residents offers a viable route to empowering local subsistence use of coastal resources.
- Successful co-management arrangements require the establishment of a local users group or management committee respected by the community and endowed with legal standing, allowing it to create and enforce management rules.
- Democratic mechanisms such as elections of local representatives to the management committee are important to establish its legitimacy and accountability to the local community.
- New harvesting regimes must be justified on the basis of joint fact-finding by both co-management partners to be credible. Harvest restrictions are more acceptable when validated by local experiments.
- Local consensus-building processes need sustained financial and technical support for solutions to take hold.
- An assessment of the current status of the resource is an essential precondition for co-management, followed by consistent monitoring over time, to determine if the resource is being used sustainably.
- Subsistence harvesting rights, even when successfully negotiated, are fragile if they begin to compete with commercial harvesting.

Perhaps that influx of money will bring new opportunities and a different way of life to Sokhulu. But in the meantime, its residents continue to depend on the humble brown mussel as a subsistence food, and have made it clear that they will fight to retain access to the shores where they have always gathered them. It took an outsider, Jean Harris, to propose that the goals of the Parks Board and the harvesters really weren't so far apart, and that a collaborative approach might bring them closer to a solution than had decades of violence and resentment.

The Invisible Users

Class and cultural biases are often embedded in systems of fish and shellfish management (Bailey and Jentoft 1990:344). Rules on when, how much, and who can harvest these resources are usually drawn up by technical staff focused on commercial and recreational fishing, but divorced from subsistence use. Such biases were reflected in provincial legislation in the 1980s, which was clearly targeted to recreational harvesters. It required mussel collectors to purchase permits and limited their take to 50 mussels per day (Harris et al. 2003:64).

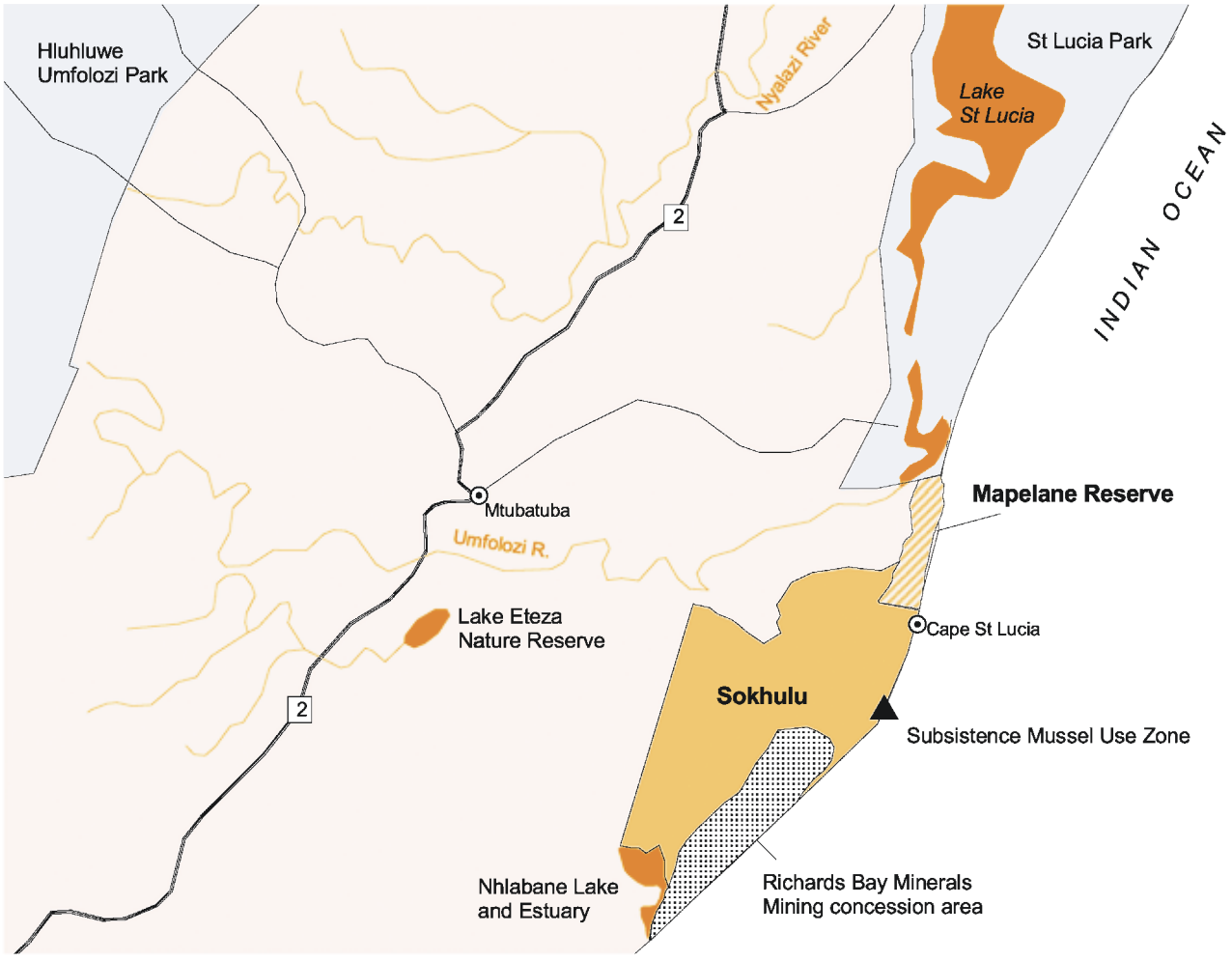
The cost of a permit was beyond the means of most villagers. Until very recently, there were few sources of employment in the region and many families needed to supplement their small salaries with free wild foods. In addition, the small daily limit meant that villagers had to walk the 2 hours to the coast and back for an amount that barely constituted a family meal. Unwilling to live with what they considered an unfair regulation, the villagers adopted a different approach (Harris et al. 2003:64, 77).

Groups of harvesters made the walk at night, stripped mussels from the rocks wholesale, and cooked them in drums over fires built in the nearby woods. They worked fast, using spades and bush knives, to avoid detection and arrest. The practice badly damaged mussel beds, reducing the stock of harvestable mussels and eliminating the protected spots among older mussels that serve as sanctuary for young mussels and attachment sites for mussel larvae. Conservation officers and vigilante fishermen, convinced that harvesters were damaging the beds, sought out and ambushed their camps, attacking and arresting them. As a consequence, a people who had long depended on mussels for subsistence was gradually divorced from its access to the resource and from its previous sustainable practices (Harris et al. 2003:66).

The conflict between the Sokhulu people and park authorities echoes similar clashes around the world where indigenous communities feel their resource rights have been violated by outsiders. In Central America, indigenous use of forest resources, including fruits, game, and medicinal plants, has often taken a back seat to the establishment of parks intended to preserve biodiversity and facilitate tourism. Commercial resource extraction has also played an important role. For example, treaty-based rights assigned to Mi'kmaq fishers in eastern Canada and Saami fishers in northern Norway were acceptable only until they began to interfere with state-imposed fisheries management systems (Davis and Jentoft 2001:225–231).

Elsewhere in Africa, the privatization of traditionally communal land rights has left many small-scale farmers with no means of support and resulted in bitter rivalries within families and clans and among townships and villages (Kamuaro 1998:302, 309–310, 313). These conflicts often have complex roots, involving rising demand on resources from population growth and economic development, conflicting objectives and poor communication among stakeholders and government authorities, lack of government recognition of customary and communal property rights, and inadequate or skewed enforcement of existing laws (Bennett et al. 2001:369–372). No matter what the mix of causes, however, indigenous communities tend to find themselves on the losing side of the conflict.

Mapelane Reserve and Sokhulu Tribal Authority, KwaZulu-Natal



Source: Harris and Radebe-Mkhize 2003

Burying Old Enmities

The Sokhulu Tribal Authority comprises eight wards, mainly rural and poor, with bad roads, no electricity, and few telephones–a legacy of South Africa's long years of apartheid. A traditional *nkosi*, or chief, heads the Tribal Authority, while councilors provide leadership in the wards. Although the region is rich in timber and minerals, until recently it had little appeal to investors because of a high prevalence of malaria. In time, new and upgraded roads into the area may bring more economic opportunity. But, at present, most jobs are a 90-minute bus ride away at the mine near the town of Richards Bay.

The last time the Sokhulu people remember being able to harvest in peace was in 1933, before the arrival of loggers. After that, they were regularly harassed by white foresters, fishers, and recreational collectors who would camp along the rocky shore and hunt for mussels and rock lobsters. The establishment of the reserve complicated matters further, adding park personnel and the force of law to the existing conflict. Where formerly, recreational harvesters and subsistence gatherers might come to blows, harvesters now had to worry about being apprehended and incarcerated. Physical violence, rock-throwing, and arrests became common and subsistence gatherers looked for new ways to circumvent regulations they saw as unjust. They began harvesting even faster, with little regard for the old ways of preserving the stock. Ultimately, the efforts of park personnel to protect the shoreline were causing greater overall damage to coastal resources, and perpetuating tension and violence between park officials and the Sokhulu community (Harris et al. 2003:66).

In 1995, Harris and Mapelane's officer-in-charge, Terry Ferguson, convinced higher park authorities that there might be a better approach. Harris obtained outside funding for a five-and-a-half year project to examine what level of mussel harvesting might be sustainable and to find ways to put

the responsibility for the resource back in the hands of those who depended on it. Through a park employee who was also a tribal member, they arranged a meeting with the *nkosi* of the Sokhulu Tribal Authority, who approved a gathering of harvesters and park staff. Officer Ferguson had recently arrested several of the harvesters and had been injured in a stoning incident. He stood before the harvesters and pleaded for their help in finding a different way forward. He proposed that if local harvesters would help park authorities ensure that the resource was being harvested sustainably, park administrators would secure them legal access to the mussel beds (Harris et al. 2003:67).

With some reservations, the Sokhulu community agreed to a scheme of "co-managing" the mussel harvest with park authorities. The agreement called for the formation of the Sokhulu Buhhlebemvelo ("Beautiful Nature") Joint Mussel Management Committee, known as the Joint Committee. The Joint Committee consisted of Sokhulu mussel harvesters, park representatives, researchers from University of Cape Town, and a few professional staff, including a community liaison officer to provide translations and keep the lines of communication open. The *nkosi* endorsed the agreement, on condition that he would be kept up-to-date on progress (Harris et al. 2003:67, 73).

Under the co-management scheme, the Joint Committee exercised control over most aspects of the mussel harvest. It identified subsistence collectors, issued harvest permits, specified collecting methods, determined the harvesting schedule, specified how many mussels could be collected per month, and hired monitors to record and oversee the collection process itself. Sokhulu members of the Joint Committee were elected within each ward by the harvesters themselves, and a Sokhulu harvester chaired the Committee, backed up by a vice chair from EKZN Wildlife, the provincial management agency. In order to keep any single individual from amassing too much power, it was agreed that the Committee chair would be re-elected each year, and the group would strive to act by consensus (Harris et al. 2003:74).

Both sides had much to gain from this arrangement. If the process worked, the community would regain use of resources it had long been denied, as well as training and logistical support, access to information about relevant political and legal developments, and the chance to participate in resource-related decisions. On the park authority's side, a successful co-management project would improve relations with the community, reduce unsustainable resource use and poaching, and decrease enforcement costs (Harris et al. 2003:68).

An Experiment in Cooperation

The first few meetings of the Joint Committee required an outside facilitator to help the Sokhulu harvesters and park personnel communicate. But as they came to know each other, the group was able to lead its own meetings. The first task was to determine how community members currently used the resource and how dependent they were on it. This was accomplished through a survey of Sokhulu households.

Next, the Joint Committee tackled finding a suitable test location that could be opened to legal harvesting. The group decided on a series of rocky ledges that supported healthy mussel beds just south of the park border. The harvesting area–called the "subsistence mussel-use zone"–comprised only 2 of the 20–30 kilometers of coastline traditionally used. Still, the Sokhulu considered the ability to collect mussels legally without fear of harassment, a significant victory. On the first day of legal harvesting, an 80 year-old woman told a local reporter:

> "Today is a big day. I eat mussels for the first time in many, many years. As a young girl, I used to collect mussels with my grandmother. Then came the restrictions. So after my mother-in-law was arrested and we had to sell the cow to get her from jail, we didn't get mussels anymore. I was worried that I would never eat a mussel again before I died (Harris et al. 2003:68)."

The Joint Committee then had to decide how to harvest in a way that would be both fair and sustainable. A strong disagreement surfaced over the kind of tool the harvesters should use to pry mussels off the rocks. A pointed stick had been the traditional tool and a screwdriver was the legal tool for recreational harvesters, both serving to dislodge only the mature mussels and leave younger stock attached to rocky outcrops. In the years when they gathered mussels in secret, however, Sokhulu harvesters had become used to using a *panga*, or bush knife, which they found to be more efficient. They saw suggestions that they should return to more "primitive" tools as efforts to hold them back (Harris et al. 2003:75).

To resolve the dispute, an experiment was proposed. Harvesting an equal number of edible-sized mussels first with a *panga* and then with a screwdriver, the Joint Committee recorded how long the harvest took and how many undersized mussels were dislodged and wasted. Although it did take almost twice as long using a screwdriver, as opposed to a *panga*, far fewer young mussels were lost. Furthermore, because the activity was now legal within the subsistence zone, the speed of harvesting was far less crucial. The experiment also inspired a re-seeding project, where members of the Joint Committee placed dislodged mussels under plastic mesh, allowing the mussels to reattach and continue growing to edible size.

Of course, the primary questions that confronted the Joint Committee revolved around determining a sustainable harvest level. How many mussels should harvesters be allowed to collect? Could they harvest year-round? Both sides had firm ideas, but neither side was basing its ideas on research. Jean Harris' original research project–sidelined by evidence of heavy poaching–had been to determine a sustainable level of use. So she helped Sokhulu women set up an experiment to answer that question. They established zones of different harvesting intensity along the shore, marking them with color-coded flags. They hired several youths from Sokhulu and, with help from park personnel, trained them as monitors to oversee the experiment and record harvest data in a scientifically rigorous manner.

The researchers and park personnel, used to communicating with literate professionals, soon learned that a different approach was needed here. Live demonstrations, models, and pictorial representations soon took the place of technical explanations. The harvesters, who were mainly women and accustomed to keeping their opinions to themselves, gradually began to speak up and ask probing questions as they gained trust that their input would be heard and respected. The local youths hired as harvest monitors also benefited in the new arrangement. Through instruction and hands-on experience, they developed concrete understanding of resource sustainability concepts. They also earned salaries and received training in English, conflict resolution, and computer skills.

The experiment with different harvest levels led to some unexpected changes in attitude. A wide range of collection intensities was chosen at the beginning of the experiment and some, of course, were not sustainable. As they saw the effects of the more intense harvests on mussel populations, and how slow the stocks were to recover, women who had wanted higher quotas at the start reconsidered their demand. In fact, they asked the Joint Committee to curtail further harvesting where collection levels had been highest and most damaging. Their participation in the experiment and their control over decision-making brought them to a very different perspective than that held only a year before. Harvesters also recommended a closed season of 3 months each winter, based on their memories of traditional practice (Harris et al. 2003:82–83, 85).

Establishing the Rules

Seeing the results of their own experiments, harvesters have readily accepted limits on the number of permits issued, size of the harvest allowed per permit, and the tools used to harvest. Monitors and Joint Committee members enforced the rules within the subsistence zone according to community norms until one recent incident, when they tried to apprehend a poacher and were physically threatened. Now they leave enforcement to park officials and law enforcement officers, but ask that offenders within the subsistence zone be brought to the Joint Committee and the *nkosi* before they are taken to a police station.

In one case the *nkosi* and the Joint Committee decided that a Sokhulu woman had breached the rules, but only because of great need: Her husband had abandoned her and she had young children to feed. She was not expelled from the group by the Joint Committee, although she was fined. The community, which bears the brunt of damages caused by resource overuse, is able to grant leniency where appropriate. The arrangement keeps responsibility for local resources and norms within the community, while reducing the potential for violent conflict and maintaining responsibility for overall resource protection at regional and national levels.

Until recently, the small size of the subsistence collecting zone remained a point of community discontent. The 2-kilometer zone was tiny relative to the area of traditional use, and inadequate to the community's needs, especially because sustainable harvest rates turned out to be lower than the community originally expected. However, in December 2002, the national government (which, under 1998 legislation, has overall responsibility for managing coastal resources) approved the Joint Committee's application to expand the collection zone to 10.5 kilometers–a credit to the community's successful co-management experiment (Harris 2003).

Beyond Subsistence

Attacking the problem from the other side, the Joint Committee is also working on developing new sources of income

for the Sokhulu people in hopes of reducing their dependence on mussels. For example, the co-management project has spawned a "craft initiative" that has tapped government funds to train some harvesters in craft development and marketing. The group now sells its crafts to three tourist shops in Durban (Harris 2003).

The co-management project itself has also been an important spur to development in Sokhulu, bringing new skills and confidence to the women who participate in the Joint Committee. Many participants in the project have tried to build their own capacities to continue working in the field of resource management. Where possible, community members have taken on responsible positions in the Joint Committee, such as treasurer and secretary, even though they required additional training. One very successful strategy has been the training of local youths to be harvest monitors: One of them has gone on to college to study natural resource management (Harris 2003).

The co-management experience has also brought the mussel harvesters considerable empowerment. Gradually, harvesters have become more vocal, challenging and arguing with park personnel. Still, without institutionalizing the progress made, the power balance could easily shift back. Harvesters are uniformly poor and female, a factor undermining their influence in most decision-making circles. To address this risk, the Sokhulu community and KwaZulu-Natal park authorities have recently signed a contractual agreement that spells out the roles and responsibilities of the two co-management partners, and confirms their commitment to continue working together (Harris 2003).

A Model of Co-Management

A measure of the success of the Joint Committee and its subsistence harvesting regime is that it is being used as a model for similar management programs in 17 other coastal communities in KwaZulu-Natal where subsistence fishing and shellfish collection play important roles in local livelihoods. In addition, the experience gained by the people involved in the Sokhulu subsistence project has become a marketable asset that is already bringing the lessons of Sokhulu to a wider audience. Two of the mussel harvest monitors have been tapped to help run co-management projects elsewhere along the coast, and the community liaison officer of the Sokhulu project has been appointed the new provincial subsistence fisheries manager (Harris et al. 2003:92).

Indeed, the tide may be turning toward a more constructive approach to subsistence fishing and shellfish collection. In 1998, South Africa passed the Marine Living Resources Act, bringing authority over marine resources under the control of the central government rather than the provinces. One provision of the law requires a new plan–now being developed–for recognizing and managing subsistence use of marine resources. Implementation of the subsistence fisheries plan has been slow, but some progress is evident. Sokhulu's Joint Committee is the first local co-management group to be granted permits for legal subsistence collection under the law. Also, in crafting the new plan, park officials have introduced mandatory training for all field personnel in conflict resolution and the principles of co-management (Harris 2003; Harris et al. 2003:89).

Keeping the success of the Sokhulu project going will not be easy. It will require favorable interpretation of national marine legislation, local perseverance, and the continuation of an open and accepting attitude on the part of park personnel and Sokhulu community leaders. In addition, the Joint Committee's legal status will need to be further clarified, so that its rights to manage subsistence mussel collection become routine, rather than legal exceptions subject to revocation. This will require a modest amendment of national law. On the positive side, the national government has indicated that it will provide on-going funding for the Joint Committee's management expenses, including the mussel monitoring program. This indicates strong buy-in at the national level–an important precondition if the Sokhulu experience is to be viable over the long term.

Using the Sokhulu co-management model for resources other than mussels may be difficult as well. Mussels have fairly low commercial value, and thus subsistence mussel collection does not tend to compete with any commercial market. But other marine resources such as fish or lobsters may have higher value in the marketplace, creating more obstacles to equitable sharing, and requiring different modes of cooperation.

Still, the basic elements of successful co-management of coastal resources are becoming clearer from the Sokhulu

experience and similar cases. A critical prerequisite is the establishment of a forum where community stakeholders and resource authorities can meet and negotiate common goals. Also critical is an appraisal of the resource and its current uses that is credible to all parties. At the heart of the co-management arrangement must be a body like the Joint Committee that has respect in the community and legal standing with state authorities, allowing it to limit access to the resource, control the harvest, and enforce rules. Adequate enforcement support from authorities is vital. Consistent and objective monitoring of the resource and harvest activities is also important to assess whether the management plan is sound or needs to be adjusted. Finally, there must be adequate technical and scientific help available, as well as consistent funding over more than just a few years to support the effort while it matures (Sowman et al. 2003:300–335).

For groups with violent or divisive histories, taking these steps requires courage and skillful mediation at first, as well as much outside support. But initial success can quickly lead to a freer process of management where local residents take leading roles in determining what and how much to harvest, and in policing their own resource use. Along the KwaZulu-Natal coast, this formula has brought greater security to subsistence users while reducing poaching levels. Instead of arrests and rock-throwing, the future of the Mapelane's mussel beds lies now with the Joint Committee, where the day-to-day meaning of sustainability can be hammered out in discussion, then double-checked at low tide.