

Sustainable basket trap fishing: Uptake of modified basket traps in Mkunguni fishing area, south coast of Kenya.

Summary

Mkunguni Beach Management Unit (BMU) is in Msambweni sub-county of Kwale county, south coast of Kenya. Artisanal fishing is the main economic activity in Mkunguni co-management area (which is the area under the jurisdiction of the BMU) and illegal fishing practices are restricted by the BMU. The fishers use rudimentary fishing vessels and traditional fishing gears. The artisanal gears in use, including basket traps locally known as “malema”, catch high proportions of juveniles of both target and non-target species, affecting the sustainability of the fishery and livelihoods of the local community. Basket traps, are the most prevalent fishing gears used in the area.

To address this, the traditional 2.5-inch basket traps were modified to 3-inch mesh sizes and trialed with a few basket trap fishers in Mkunguni fishing area. Use of modified basket traps reduced the capture of juveniles of target species, increased the catch rates and consequently the income of the fishers. Uptake of the modified traps by all the basket traps fishers in the area after the trial has increased the income for the fishers and contributed to reduction in the capture of juvenile fish. With increased income, the fishers have formed Village Savings and Loans Associations with the aim of saving part of their income from the sale of fish and accessing unrestricted loans when arises.

Classification

Region-Western Indian Ocean

Scale of implementation-Local, National

Ecosystem-Coral reef, beach, lagoon, marine and coastal ecosystems, sea grass

Theme-Fisheries and aquaculture, Climate smart practices, science and research, sustainable financing, community development, ecosystem services

Others-Community based conservation

Challenges-Use of destructive fishing gears/methods, overfishing, poverty, Unsustainable financing, and loss of biodiversity.

Governance type Shared governance, by local communities

SDG - 1, 4, 6, 11, 12, 13, 14 and 17.

Location - Mkunguni Beach management Unit, Ramisi Ward, Msambweni Sub-County, Kwale County, South coast Kenya

Challenges

Like most coastal areas, Mkunguni community is heavily dependent on inshore fishing. The fishery faces degradation of marine habitats and depletion of fish stocks due to use of destructive and illegal gears, overfishing, lack of modern fishing vessels to access offshore areas, and negative impacts of climate change which reduces fish catch and consequently the income of fishers. Use of modified basket traps was identified as a solution to reduce the use of unsustainable gears that catch high proportions of juveniles of target and non-target species and increase the income for the fishers. Getting the basket traps fishers to participate in the trial was a challenge owing to the perceived possible decrease in catches by using basket traps of larger mesh size. A participatory approach was employed to bring on board fishers, relevant local leaders and lead institutions, in co-designing the basket trap intervention.

Beneficiaries

Fishermen, women, fish traders and youth.

Building Blocks

1. Trial and upscale of modified basket traps

We conducted a series of awareness and sensitization meetings with the basket traps fishers and the community on impacts of destructive fishing gears on ecosystems and livelihoods. The basket trap fisher recommendation modification the traditional basket traps from 2-3 inches mesh sizes. We co-designed the traps with the volunteer fishers prior to the trials. Sixteen fishers volunteered to trial the modified traps. Trained fishers and other community members collected fish data throughout the trial. We used the data to evaluate the catch composition, size structure of fish captured, juvenile retention, catch per unit effort (CPUE) and fishers' income. From the data, modified traps were considered beneficial economically and ecologically, and all the basket traps fishers expressed interest to start using the. This led to the upscale phase where the fishers were facilitated to construct the modified basket traps.

Classification

Category-Training, capacity building, research, awareness and sensitization, local traditional knowledge,

Scale of implementation-Local, Sub-national, regional

Enabling factors

a) Sensitization and awareness programs

We involved the local community in sensitizing their peers on the negative impacts of using unsustainable fishing practices.

b) Building on participatory research

We trained BMU members to collect data on daily catches. Data was analysed and results shared with the fishers and the rest of the BMU. The next step of adoption and uptake was deliberated with the fishers. Use of the 3-inch basket traps was seen to reduce the proportion of immature fish individuals, reduced the proportion of non-target species, and increased the mean length and weight of the target species captured, thereby providing benefits to the ecosystem and economically.

c) Capacity building in construction of basket traps

Volunteer fishers were facilitated to construct the 3-inch basket traps with CORDIO providing initial resources. The fishers on the other hand sourced for additional construction material from the wild, which reduced the cost of construction. Use of locally available and cheap materials to construct the basket traps makes them more economically viable and operationally convenient. Also, more fishers could be reached with the limited resources. 70 fishers each received 2 traps, totaling to 140 traps.

d) Use of local traditional knowledge in gear construction

The members had knowledge in basket traps construction, and only made modifications in mesh sizes from 2.5 inches to 3 inches. Being contracted to do the construction motivated them more as they earned money from the exercise, while at the same time they were constructing basket traps that they would use.

Lessons learnt.

- Community-based conservation initiatives must involve the community actively in planning, designing, execution, and discussions on progress.
- It's important to educate the local population about the effects of unsustainable fishing methods.
- Making the fishers construct the traps was an assurance of traps of good quality.
- When beneficiaries understand the issues, are involved in creating solutions, and gathering data to show if the suggested remedy is effective, recommended interventions are more readily accepted.

Sustainable financing

We resolved the challenge of financial limitations by encouraging the fishers to join saving groups. They fishermen have formed Village Savings and Loans Associations (VSLAs) with the aim of saving part of their income and access loans with ease. We trained the groups have on how to run the VSLA, financial management and group dynamics and provided them with the required inputs such as record keeping books. The VSLA, also known as table banking, members hold weekly meetings, where they contribute savings and those who need loans requesting for them, clearly stating mode of repayment, use of the loan and repayment period. The fishermen are now able to cater for their daily needs during the Southeast Monsoon (SEM) season when there is no fishing due to the rough weather conditions. They spend time constructing and repairing the basket traps in preparation for the high Northeast Monsoon (NEM) season where they can go out fishing. Through the savings, some take loans to pay school fees for their children, construct houses, buying household items, starting and expanding businesses among others. Within a period of 1 year, the fisher groups had already saved over Ksh.400,000, compared to Ksh.250,000 that was spent during the implementation phase. The groups are already looking for investment opportunities for their savings to raise their financial status.

Classification

Category: Sustainable financing, alternative livelihoods

Scale of implementation: local

Enabling factors

- The existence of a similar table banking within the Beach Management Unit (BMU) being done by women through a UNEP funded project, was used as a good example as they had made significant and admirable progress. This motivated them to also form their table banking groups where they will be saving their income from fishing.

Lessons learned.

- Most of the community members engaged in small medium enterprises require ease at accessing finances to not only meet their daily needs, but also grow bigger financially, as well as save more for the future. The members had not engaged in an income savings scheme hence spent all their money without retaining some for the days with low or no earnings.

Interaction of the building blocks

Inclusivity of all players during an intervention is a critical aspect to consider. The design of the project targeted modification of the existing gears was a way of incorporating traditional indigenous knowledge to the perpetual challenge of juvenile capture. The trial phase enhanced understanding of the impacts of the different basket trap mesh sizes on ecosystem and fish catch. Participation helped establish an element of sustainability and ownership. Benefits accrued from the interventions financially, surpass the initial capital for both trials and uptake.

Impacts

Ecological and economic benefits: Use of modified basket traps reduced the number of non-target species by 82.6%, increased the size of target fish captured by between 6.3% and 15.1%, reduced the number of juveniles individuals of dominant species by 23.7%, and increased the catch rate by 214.1%, and consequently the income to the fishers by 222.1%.

There has been a development of a savings culture among the fishermen who have formed Village Savings and Loan Associations (VSLA) creating financial sustainability. With the VSLAs, the fishers save part of their income and can access unrestricted loans which they use to cater for other basic needs such as school fees, constructing and repairing their houses, buying household items, and opening and expanding to other businesses. They are also covered during the low Southeast Monsoon (SEM) season when the sea is rough, and fishing is difficult.

Story

Basket trap fishers have traditionally used small mesh-sized traps of below 2.5' inches for fishing. However, these traps have been known to capture high proportion of juveniles contributing to

overfishing. Umayya Hamza aged 35 years, a basket trap fisherman in Mkunguni, says he has been fishing for over 20 years. Over the years, he has seen a decline in fish catches and rise of degraded habitats due to use of destructive fishing methods. He volunteered to participate in the modified basket traps trials and provided oversight during the construction of the modified basket traps. He pioneered in the formation of a VSLA group involving 70 basket traps fishermen and he is currently the chairperson to one of the groups. He says the group has helped him learn the importance of saving part of his income, and when need arise, he can easily access unrestricted loans on his savings. By taking loans from the group, he has started other income generating activities like horticulture, which he does during the Southeast Monsoon (SEM) season when the sea is rough, and he is not fishing. This ensures a constant flow of income. Other fishermen like Hamza have taken their children to better schools, expanded their businesses, completed construction and furnishing of their houses, and bought assets. This has been enabled by better income generated from fishing using modified basket traps and better savings culture by the fishermen. The fishermen can earn their livelihoods at the same time using the ecosystem sustainably.