

# An assessment of the socio-economic impacts of the Bitumen spill at Shelly Beach, Likoni, Mombasa County.

## FACTSHEET

### Background

Oceanic transport of oil carries the risk of accidental spillage, with potentially serious consequences for both aquatic ecosystems and the human communities that depend on them (de Oliveira Estevo et al, 2021). On the 19<sup>th</sup> of December 2021, a foreign-registered cargo vessel, the M.T. Rising Phoenix, spilled more than 6 tons of Bitumen residue (Grade 60/70) while discharging its cargo at the Mbaraki wharf in the port of Mombasa, Kenya. An unknown amount of Bitumen residue escaped into the harbor waters thereby polluting the marine environment and disrupting commuter ferry operations. On the days following the spill, Bitumen deposits were washed up along Shelly beach in Likoni and Mama Ngina Drive in Mombasa. Fresh bitumen can harm marine animals, including fish embryos and juveniles, in a manner similar to that of other petroleum hydrocarbons - including crude oils (Alderman et al., 2017).

Between the 7<sup>th</sup> and 8<sup>th</sup> of February 2022, KMFRI's Socio-economics department undertook a mini survey (Finsterbusch, 1976), with the aim of identifying the social and economic impacts of the Bitumen spill on the fishing community at Timbwani along Shelly Beach. In this report the findings of this assessment are presented, as are several recommendations.

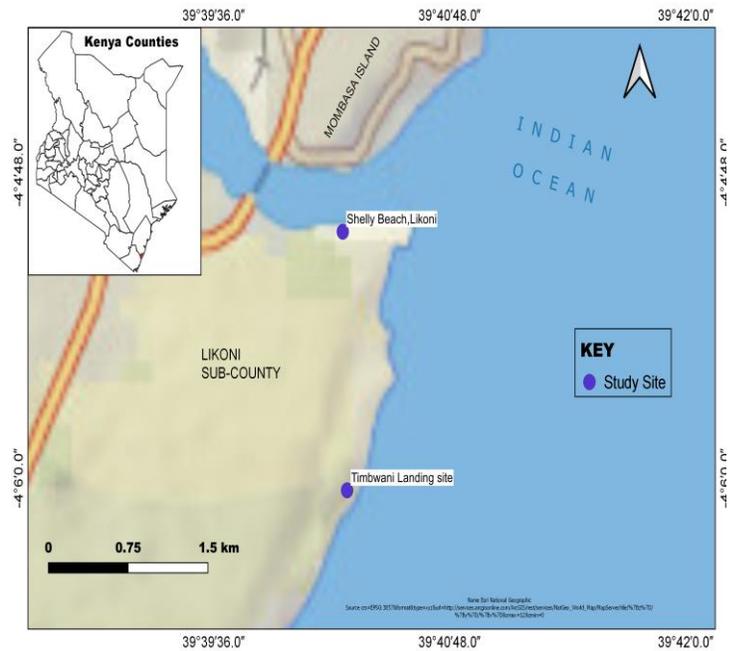


Fig. 1 Location of study sites

### Study objectives

Aim of identifying the social and economic impacts of the Bitumen spill on the fishing community at Timbwani along Shelly Beach

### Results

#### Social impacts

- **Health and well-being** – Respondents reported experiencing Bitumen-induced ailments, including persistent coughs, chest pains, eye irritation and joint pains. Five interviewees claimed to have suffered from anxiety brought about by the uncertainty of their livelihoods – since fish was no longer available. Additionally some of the fishermen, increased stress within the household was a significant outcome of the Bitumen spill; this was due to the inability to meet family needs, spousal suspicion due to reduced incomes and anxiety about the future.
- **Reduced food security** – thirty one (31) of the respondents claimed to have experienced a decline in their household food security following the spill. Reduced incomes meant less purchasing power.
- **Sense of abandonment** – the government's failure to respond to the community's plight (this was the overwhelming perception among the respondents) greatly distressed them. This generated feelings of abandonment, bitterness and frustration among the respondents. Furthermore, there was limited consultation with (and participation of) the community during the clean-up exercise.
- **Diminished cultural significance of livelihoods** – Productivity of their livelihoods was significantly diminished by the spill, and without a rewarding livelihood and no viable alternatives, the only survival option was to desperately persevering in their present occupations. This has adversely affected their self-esteem, to the point of feeling despised by the authorities.

### Methods



Plate a: Key Informant Interview

## **Economic impacts**

- **Lack of fish = Loss of fishing-related incomes** – the Bitumen spill spread to Shelly beach causing the disappearance of fish due to contamination of local fishing grounds. Reduced incomes meant the inability of respondents to meet their household obligations (such as providing food, medicine, school fees) - which increased the level of deprivation therein. As a result the standard of living in the respondents' households had significantly declined. The Zebra fish is one species noted to have disappeared following the spill. Notably, prices of fish had only increased at Likoni, not at Timbwani – apparently due to strong social ties among the community. According to the study's Key Informants, by lowering incomes the spill had contributed to increased poverty within the affected fisher households.
- **Increased costs** – despite earning lower incomes during this incident, fishermen were forced to spend more on fuel as they had to travel further offshore to find fish. For fishermen using canoes, more time was spent accessing distant fishing grounds.
- **Reduced demand for fish** – following the spill, much of the local community perceived that the (few) fish available for purchase were contaminated. As this perception spread, demand for fish from local customers declined, further reducing fisher incomes.
- **Declining Tourism** – the visible Bitumen deposits afloat during high tide, and attached to coral rocks during low tide, greatly reduced the aesthetic value of the marine environment at Timbwani. Visitors to the beach, local and foreign, had expressed dissatisfaction with the contaminated state of the beach, and with the stench produced by the deposits. The decline in tourist numbers greatly reduced incomes of tourist-service providers (e.g. tour boat operators, those renting floaters or selling food and refreshments).

## Bitumen deposits at Timbwani beach



Plate b: Solid Bitumen residue observed during low tide at Timbwani beach

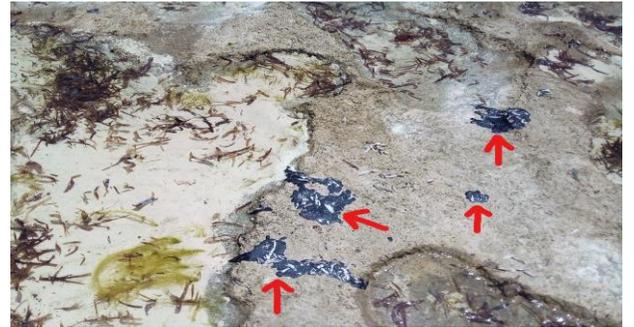


Plate c: Additional dried Bitumen at Timbwani beach

## **Recommendations**

- There is need for a **rapid response** by concerned government agencies in the event of any calamities affecting the local (fishing) community. In addition, feedback to the community following any government response or intervention should always occur.
- **Counselling and Advisory services** – should be availed to fisher-folk whose livelihoods have been negatively affected by the spill
- **Health check-ups** – are needed for fisher-folk who have either handled the contaminated fish or have been submerged in the contaminated water.
- **Appropriate compensation** for the affected fisher-folk should be considered.
- **Access to legal resources** – ought to be provided to the fishing community. The government should formulate a mechanism by which the community can access legal aid to advise them accordingly in the event of any marine calamity
- An **inclusive marine environment monitoring program** involving the local BMUs (communities), KMFRI, the Kenya Maritime Authority (KMA) and the State Department of Fisheries (SDF) should be created; periodic socio-ecological assessments should also become the norm. This would allow for public participation in implementing emergency mitigation strategies, as well as raise the level of disaster preparedness among communities.

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