GMES AND AFRICA

African Union

CSIR
Touching lives through innovation

Use Cases from the end-users' perspective: small-scale fisheries sector (ABALOBI)

BACKGROUND:

Our oceans and coastal communities are in peril, threatened by overfishing, biodiversity loss, Climate Change, and many interconnected social and environmental injustices. Under the banner of the Blue Economy, our oceans have also recently become considered the last frontier for economic development. Yet nearly 500 million people worldwide who derive a livelihood from our oceans are primarily excluded from this development narrative, despite their significant contribution to global food security through Blue Foods and having the most to offer and the most invested in ocean health.

Small-scale fisheries constitute 40% of the global catch and provide food for billions worldwide. Yet, most fishers do not have access to technologies and systems that facilitate traceability and transparency, rendering them incongruent with the rapidly rising global consumer demand for traceable and sustainable products. Considered data-poor and plagued by Illegal, Unreported, and Unregulated (IUU) fishing activities, they are marginalized in the marketplace, governance, and management spheres, remaining price-takers whose critical Local Ecological Knowledge is severely undervalued. This fiscal and power dynamic is reinforced by a financial dependency on mid-chain actors, a lack of access to fair markets, and an inability to engage directly with end consumers.

The service was developed by ABALOBI in conjunction with the CSIR, and leverages satellite images to provide small-scale fishers with access to near real-time data on Chloropyll-A and sea surface temperature (SST) that impact both their fishing decisions and safety of life at sea.

MarCOSIO

KMFRI · National Sea Rescue Institute · Universidade Eduardo Mondlane · WIOMSA · reef conservation · ABALOBI · Benguela Current Convention · CORDIO East Africa

END-USER'S PROFILE (BENEFICIARY ORGANIZATION):

ABALOBI, meaning «fisher» in isiXhosa, is a South African-based non-profit organization with a global mission to drive sustainability in small-scale fisheries. We provide small-scale fishers with market access, digital identity creation, formalisation of their livelihoods, fair pay, access to world leading fisher-driven technologies, and comprehensive capacity buidling to equip them as equal participants in the fourth industrial revolution.

By utilizing pioneering fisheries improvement data technologies, ABALOBI aims to create ecologically, economically, and socially sustainable fishing communities. Our focus is on empowering small-scale fishers through a combination of financial inclusion and the strategic use of data and technology within frameworks of fisheries rebuilding and social enterprise.

As a consortium partner, ABALOBI has worked closely with the CSIR to provide small-scale fishers in South Africa with access to Chloropyll-A and sea surface temperature (SST) that impact both their fishing decisions and safety of life at sea. The data is provided in the form of satellite images to fishers via ABALOBI's Fisher mobile application, which is free for any South African small-scale fisher to use.

END-USER'S NEEDS:

ABALOBI led a series of co-design workshops and community feedback workshops with fishers to understand and map out their requirements concerning adequate access to reliable and timely forecasting and sea state data. Through a series of engagements that included consortium lead, the CSIR, ABALOBI team members determined the suite of services required, and worked with the CSIR to provide fishers with access to free forecasting and current sea state reports including satellite sea surface temperature (SST) and Chlorophyll-a (Chl-a) concentration images, embedded in the ABALOBI Fisher mobile application.

INFORMATION PROVIDED:

Drawing on fisher feedback, the ABALOBI in-house development team developed a co-designed fisher forecasting and satellite sea state interface, nested within the ABALOBI Fisher mobile application, which is free for all small-scale fishers to use. The ABALOBI Fisher app is a mobile application developed by ABALOBI in 2018. Under the consortium, the application has been augmented to offer the additional satellite sea-state interface.

The system pulls up-to-date forecasts from a third party into the app, configuring them for low data usage, and also provides a real-time report of conditions local to the fisher, using GPS coordinates. Additionally, images of SST and Chl-a, derived from Sentinel-3 SLSTR and OLCI sensors respectively, provide fishers with valuable information that they use to determine when and where to fish.

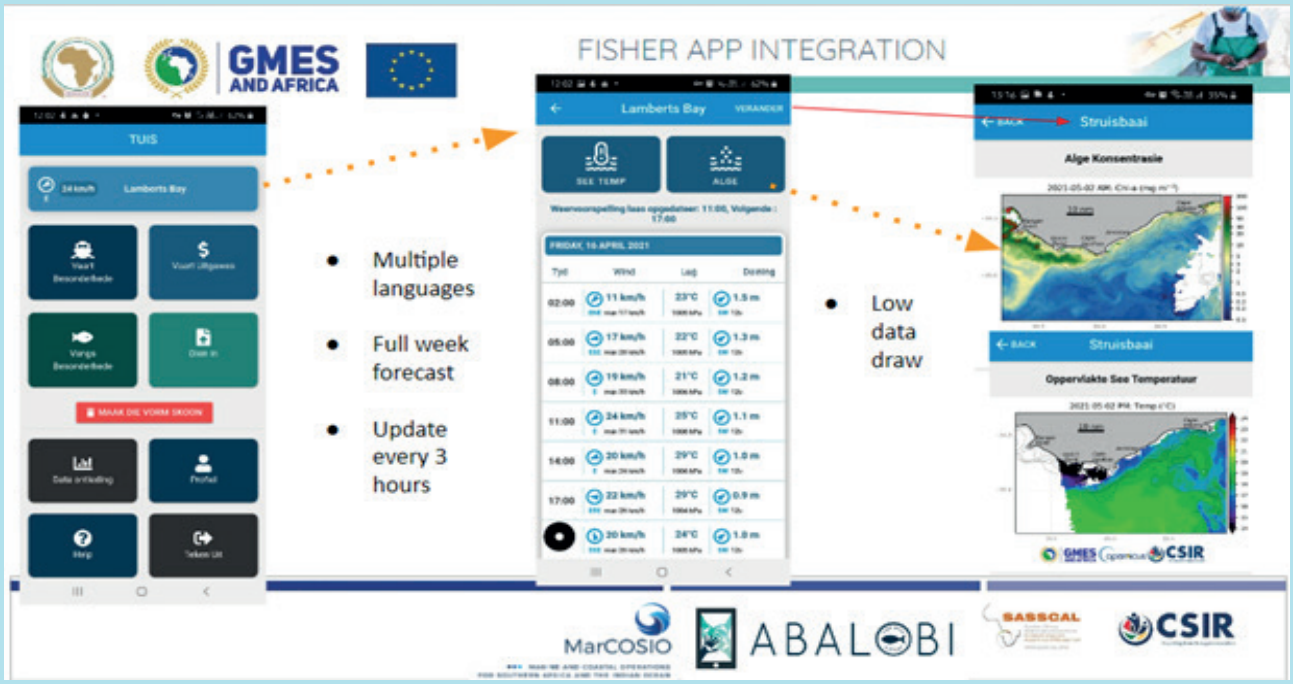

Fig. 1 Example of the in-app service showing key features.

USAGE:

Currently, over 2000 small-scale fishers along the South African West and South coasts are accessing the service. ABALOBI's in-house community development team offers fishers access to both in-person and online training, specifically designed to equip them with the skills to engage meaningfully with the technology and satellite images provided.

The service is currently available to fishers along the South African West and South coasts, with further development and co-design currently underway to precipitate a rollout of the technology in East Coast fishing communities in Q4 2024 and Q1 2025.

IMPACT:

The service provides fishers with high-resolution data that enables better decision-making. Coupled with training by the ABALOBI community development team, fishers have been made aware of the value and role of the satellite images, which, when paired with the forecasting and real-time condition reports, greatly enhance planning, safety, and cost efficiencies.

The service has contributed towards the fishers' overall resilience, safety, and income protection. Fishers who access the mobile application and sell their catch of the day via the ABALOBI Marketplace digital seafood platform see an average 200% increase in their

earnings per kilogram, and an 18% reduction in the length of their fishing trips, reducing their exposure to hazardous conditions.

For further impacts, please see **here**.

OUTREACH:

The service has been well socialised with user groups along the South African coastline, to the extent that fishers in South Africa's Eastern Cape Province, having heard about and seen the service in use during a recent fisher exchange, have requested that the interface be expanded to include their fishing areas. Co-design and training work is currently underway to build the foundation for service expansion to these areas, as well as further expansion into Kenya and Tanzania, scheduled for 2025.