

An Overview



**Fisheries Department
- KMFRI
November 2020**



Establishment & Role of KMFRI

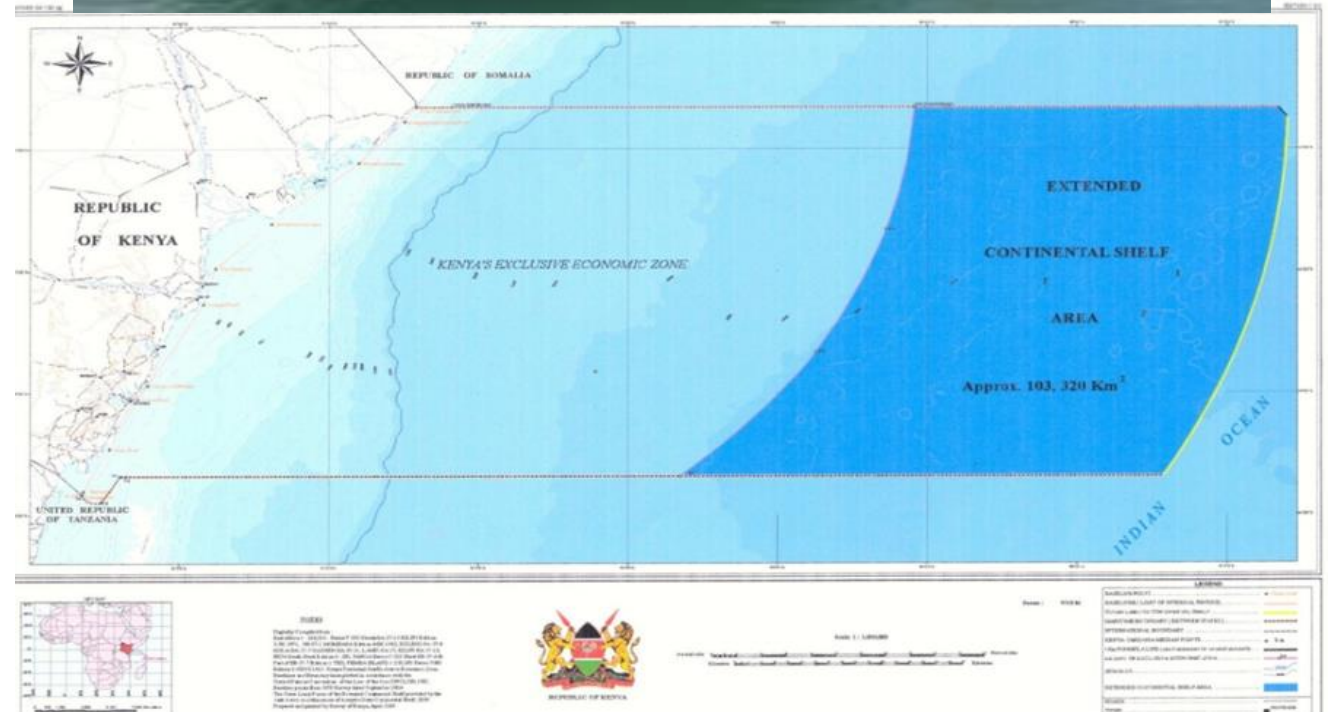
- A State Corporation established in 1979 by the Science and Technology Act, Cap 250 of the Laws of Kenya, (repealed by the Science, Technology and Innovation Act No. 28 of 2013)

Big Four Development Agenda

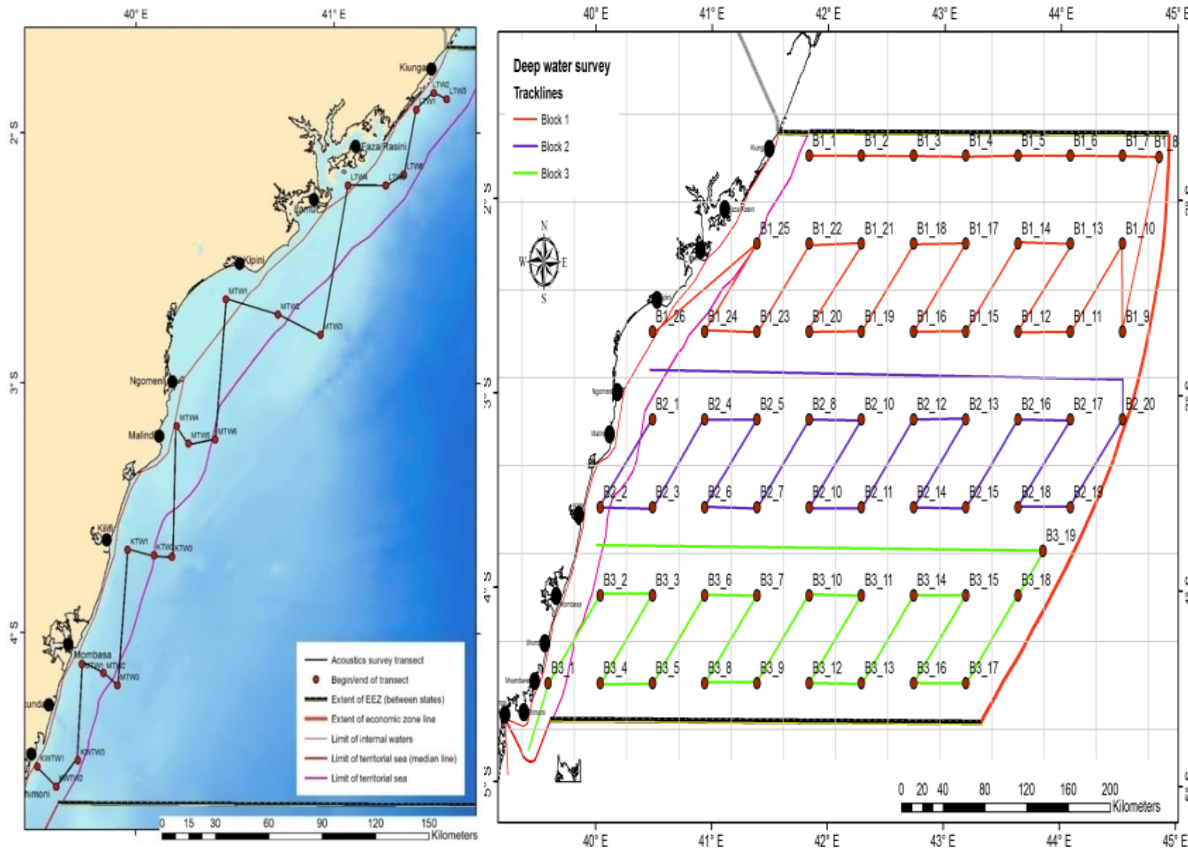
- *Food and nutrition security*
- *Manufacturing and Agro-processing*
- *Universal Health*
- Affordable Housing

MARINE FISHERIES: MT2 DEVELOPMENT PLAN (KENYA VISION 2030)

- To increase fish production from capture and culture fisheries by 10% annually;
- To reduce postharvest losses from approximately 25% to 5% by 2017;
- Development of the 200 mile EEZ for marine fisheries
- 600 Km coastline, 230,000Km sq EEZ, and 100,320Km sq continental shelf. (UNCLOS)
- 6000-9000mt, worth Ksh. 1.4 Billion of 4-10% national of fish landings , new estimate from reconstructed data 16,000Mt
- 80% of the marine catches are landed by artisanal fishers



RV Mtafiti research surveys



- The blocks are territorial waters (left),
1. off Lamu Block 1 (red),
 2. off Kilifi Block 2 (purple)
 3. off Kwale Block 3 (green)

Block	Area (Km)	Fish Biomass (tonnes)	Value estimate in KES assuming a 20% exploitation rate
Territorial waters	14,156	243,941	15 Billion
EEZ off Lamu	52,383	321,264	20 Billion
EEZ of Kilifi	47,258	745,590	44 Billion
EEZ of Kwale	52,522	919,345	55 Billion

Departmental capacity

- **19 scientists**
- Fisheries stock assessment (Lobsters, aquarium fisheries, small and medium pelagics, siganids, prawns)
- Observer program
- Fisheries biology
- FADS research
- GIS
- Sea turtles and sea birds research
- Fisheries Management
- Natural products and Post- harvest
- Hydro-acoustics
- Mapping of fishing grounds within territorial waters,
- marine biodiversity
- Genetics and molecular biology
- Marine fish taxonomy
- Fisheries and marine resources management

Fisheries Research



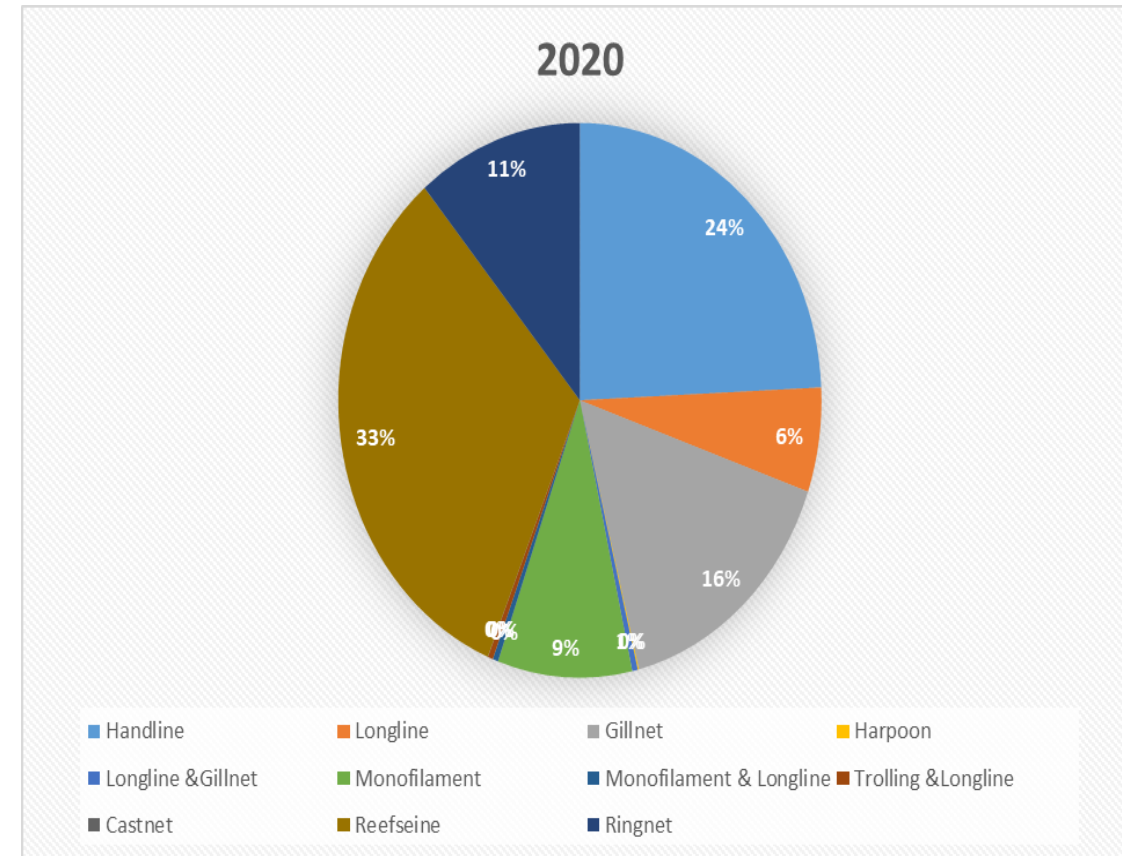
The programme seeks to address food security, nutrition and manufacturing under the following subsections

- Fish stocks assessment
- Spatial planning on fishing and breeding grounds
- Fish biology and ecology
- Biodiversity assessment
- Fish quality and safety assurance
- Post-harvest technology and value addition
- Innovative fishing gears and techniques

Coastal and Marine Fisheries Research Department Catch Assessment Surveys

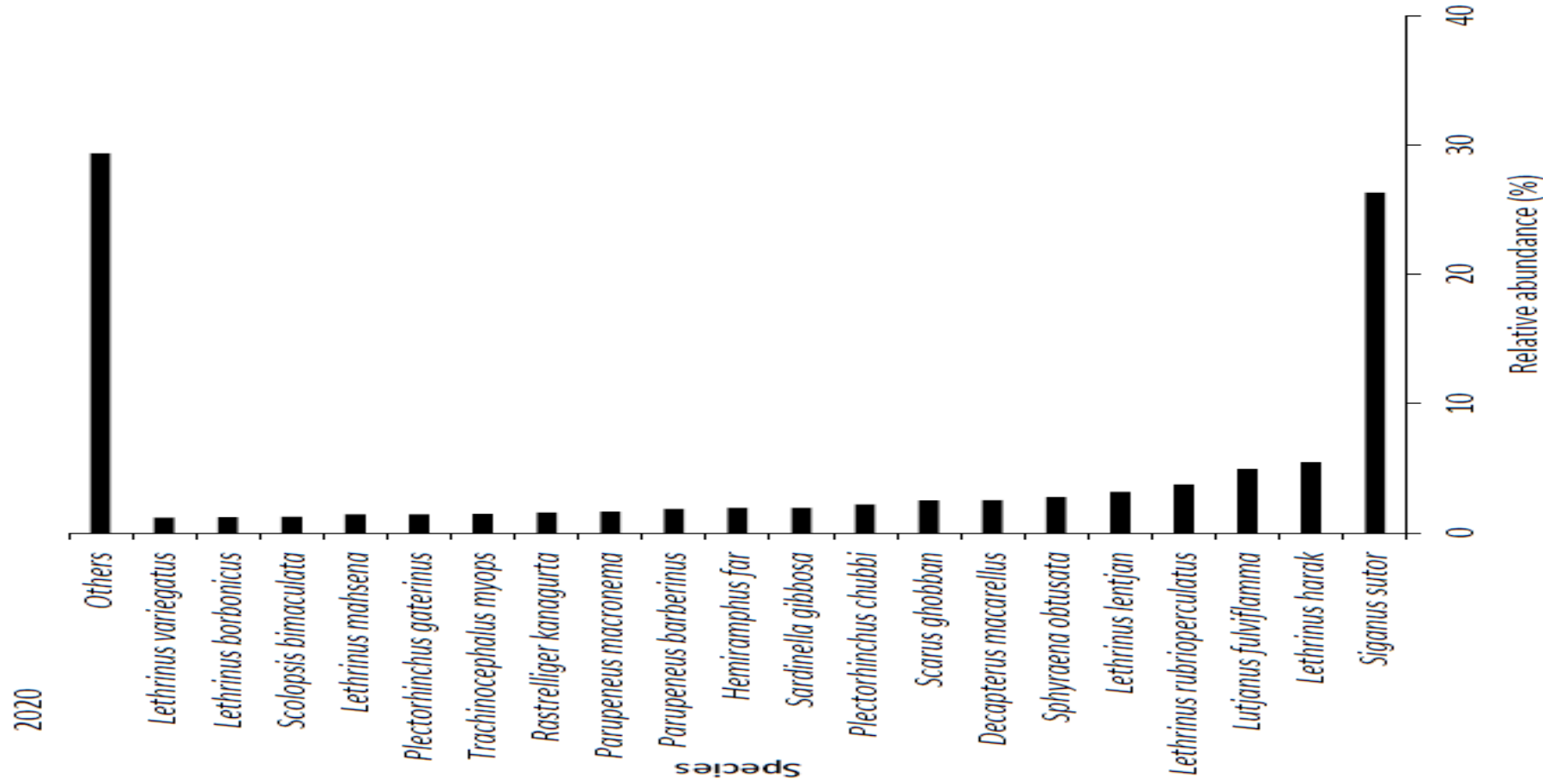


Catches

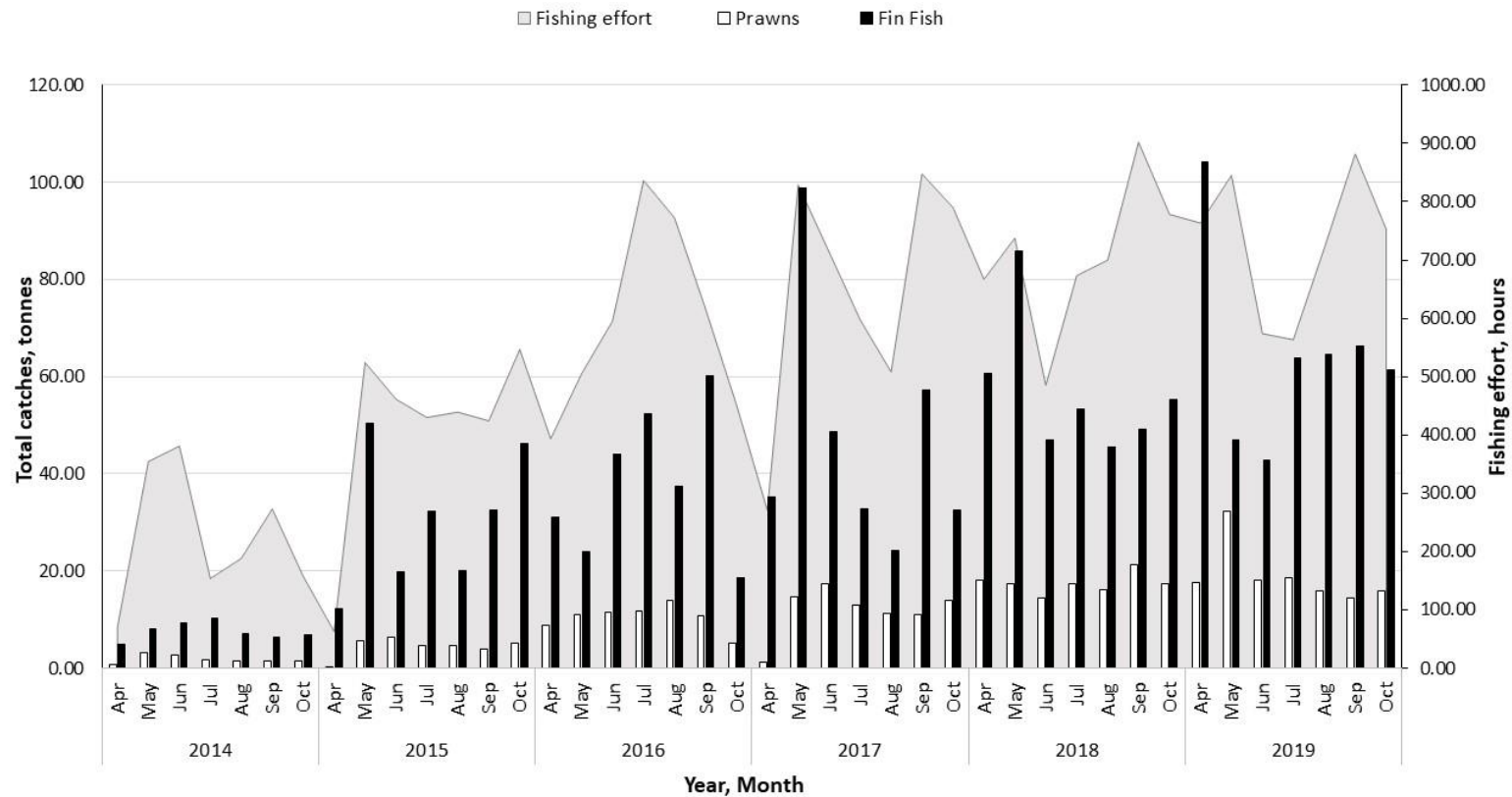


Gears used

Relative abundance for the fish species sampled in 2020 in Kwale county

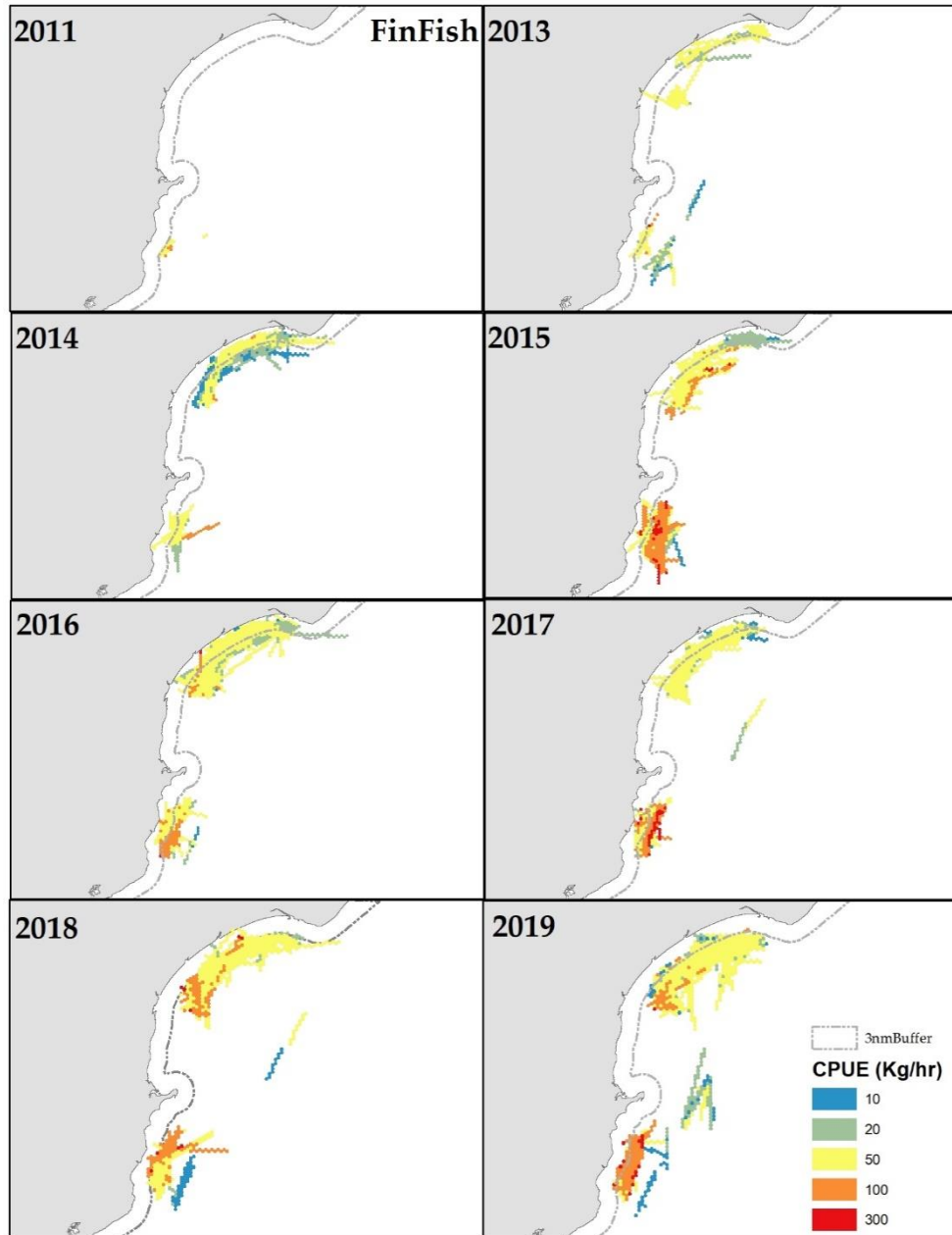


Current status of the shallow water industrial prawn trawling fishery in Kenya



Monthly trends in trawl catches in the Malindi-Ungwana Bay over 2014-2019 fishing seasons

Spatial planning on fishing and breeding grounds



Annual trends in finfish bycatch CPUE in the Malindi-Ungwana Bay over 2011-2019 period

Offshore industrial fisheries: facts and figures

**We can
have an
updated
slide from
Seamar II**

Species composition of commercial longline catches within the Kenyan EEZ

Family	Common name	Total biomass (Kgs)	%
Xiphiidae	Swordfish	13587	42
Scombridae	Tuna	8971	28
Carcharhinidae	Sharks	6051	19
Istiophoridae	Marlins	2482	8
Sphyraenidae	Barracuda	314	1
Gempylidae	Snake mackerels / Escolars	278	1
Coryphaenidae	Dolphinfishes	188	1
Bramidae	Pomfrets	89	0
Lamnidae	Mako sharks	81	0
Alepisauridae	Lancetfish	49	0

- Other species of commercial value: Lethrinidae, Serranidae, Labridae, Scaridae

Aquaculture Research



Innovative research to farm tilapia in Marine waters



Drying seaweeds for the manufacturing industry



The programme undertakes research in :

- **Breeding technology for fingerling production**
- **Innovations on farming systems**
- **Innovative fish feed production**
- **Adaptation to climate change impacts**

(Potential of K sh 750 billion annually FAO 2016)

Aquaculture Research



Research in Marine ecosystems



Mangrove and seagrass access to blue carbon



- **Habitat for fish and other wildlife**
- **Shoreline protection**
- **Livelihood support**
- **Biodiversity assessment**
- **Climate change mitigation/adaptations**
(coastal blue carbon potentially valued at KSh. 20 billion/yr)

Research has assisted community to access carbon credits income worth KSh. 2.0 million/yr for 20 yrs.

Research in restoration of coral reef habitat



Planting corals in the nursery



Tourist diving in a health coral reef



Corals transplanted in artificial reef



Research in freshwater ecosystems



Research into environmental aspects of cage culture in L. Victoria

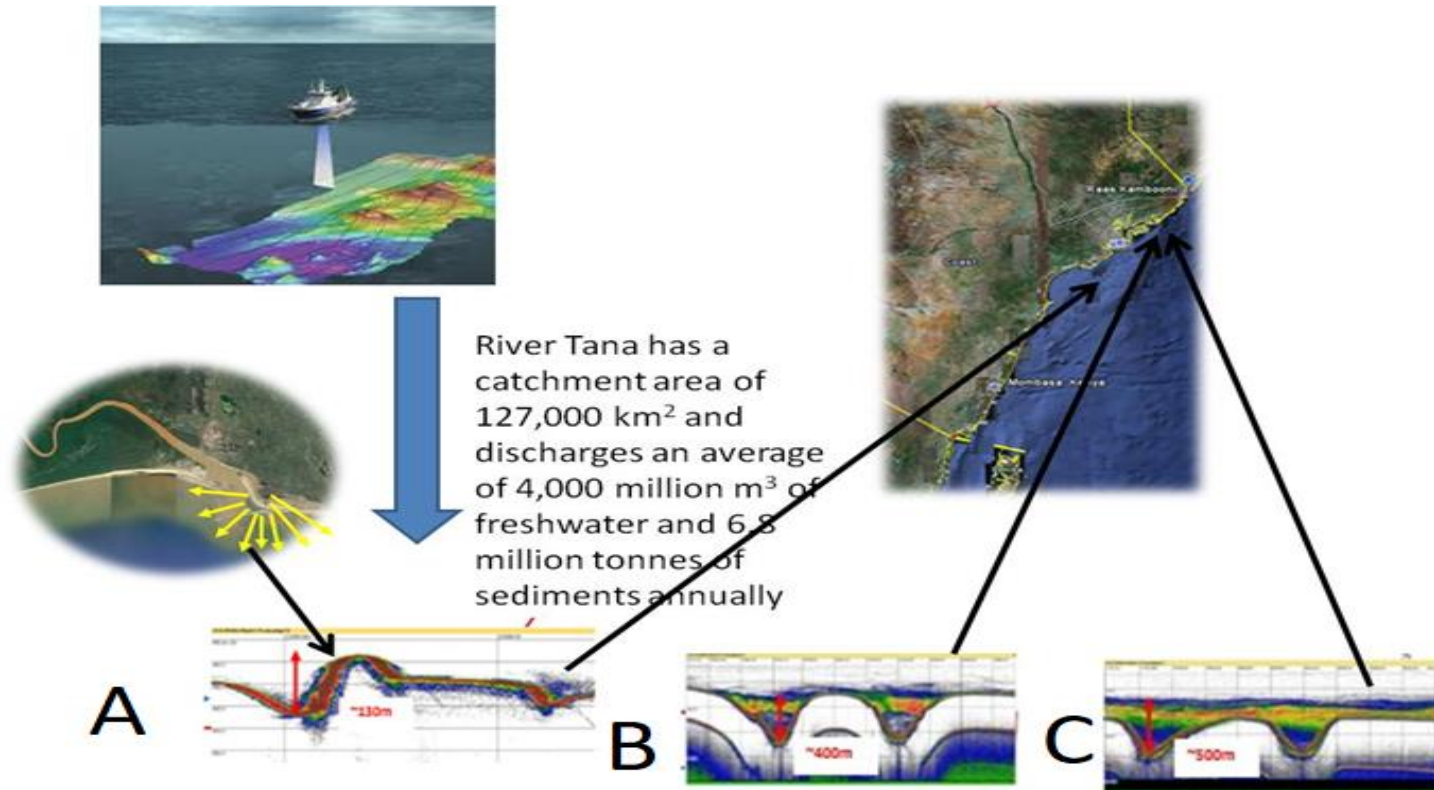
Lake Victoria fishery contributes (90%) - 2015, (118,145 t) – Ksh 12 billion

Reconstructed data have estimates of about Ksh40 billion

Projections from reconstructed data estimate a value of Ksh 120 billion

Research in Hydrography and Oceanography

RV Mtafiti State-Of-the-Art research has revealed three key marine structures (A,B & C) important to the blue economy. The North Kenya Bank has been identified as the next fishery frontier.



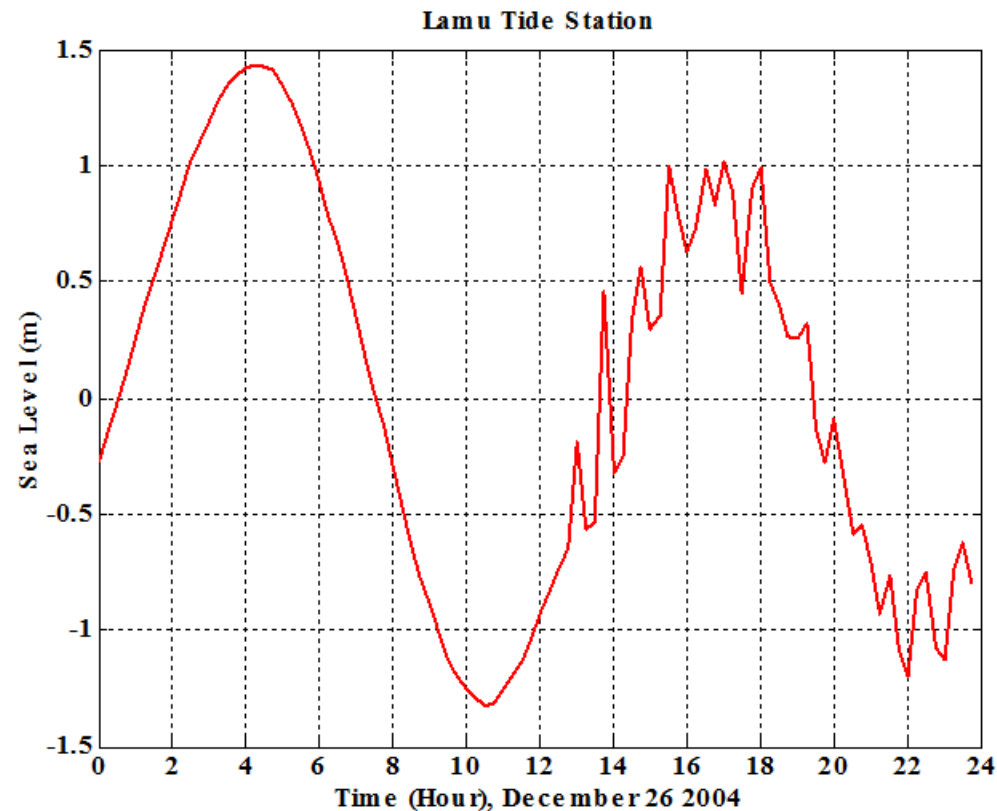
A Formation of the Northern Kenya Bank : Tana River sediments piled up to 130 m forming a sea mountain

B & C Deep valleys up to 500 rich in fish stocks near Lamu

Research in Hydrography and Oceanography: Production of tides tables



- **Tide predictions hourly**
- **Production of tide table**
- **Early warning system for Tsunami**



The December 26 2004 Indian Ocean tsunami was recorded by the Lamu tide gauge.

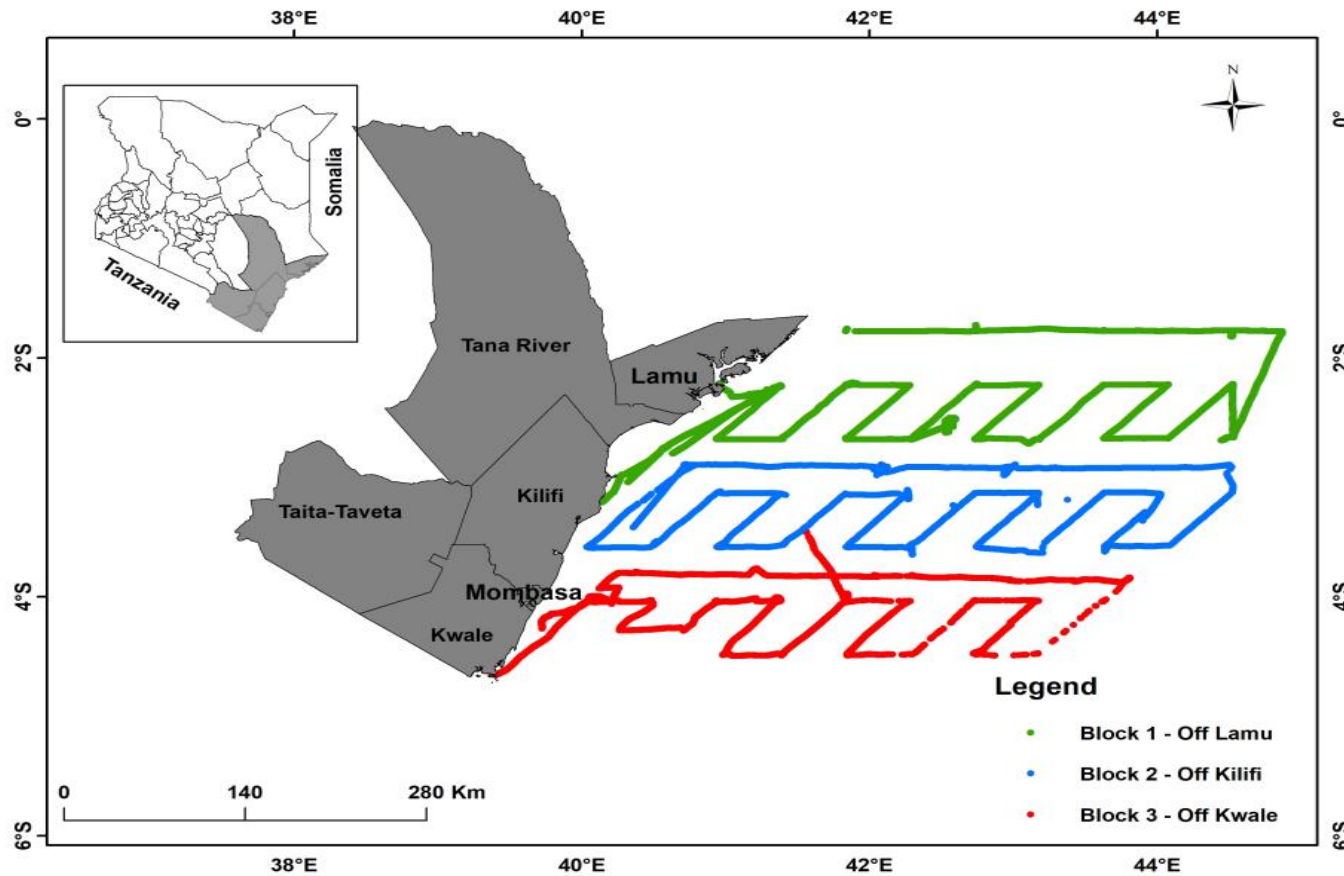
The wave arrived in Lamu at 13:00 HRS local time.

Contribution of fisheries to the GDP in Kenya

Description	KSh, Billions (2016)
Coffee	16
Tea	117
Cut flowers	71
Livestock	125
Fisheries	40
Total	369
Blue Economy (Potential)	500

Source: KNBS Economic Survey 2017

Research into Blue Economy-new frontiers



Area	Estimated fish biomass (tons)	Estimated value at 20% exploitation /yr
Territorial waters	444,000	15 billion
EEZ	1,987,000	119 billion

RV Mtafiti cruise transects used to estimate fish biomass



Research into Blue Economy-new frontiers

Gas hydrates



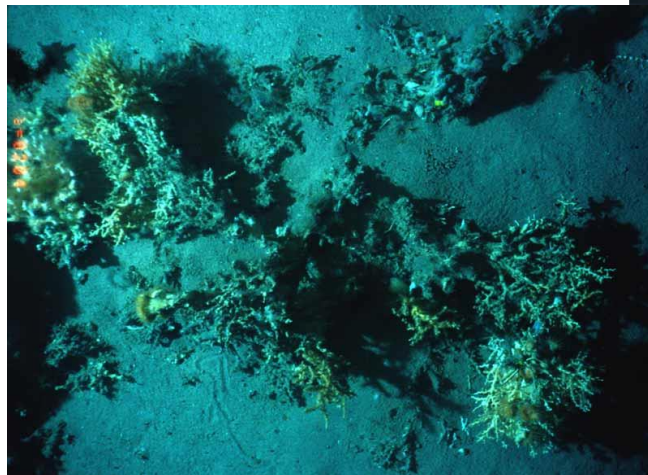
**Cobalt
crusts**



**Manganese
Nodules**



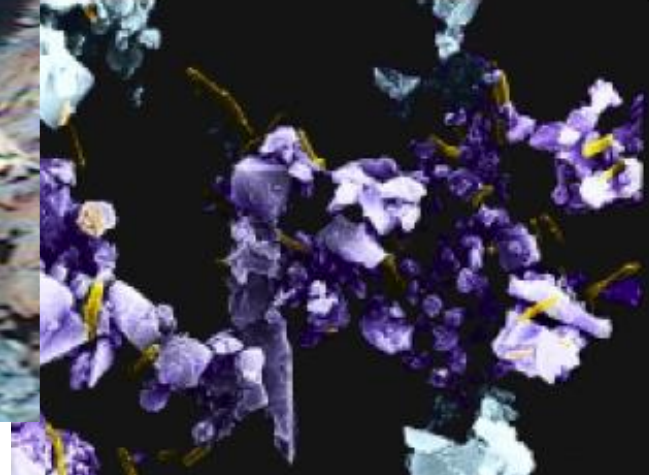
Biomedical



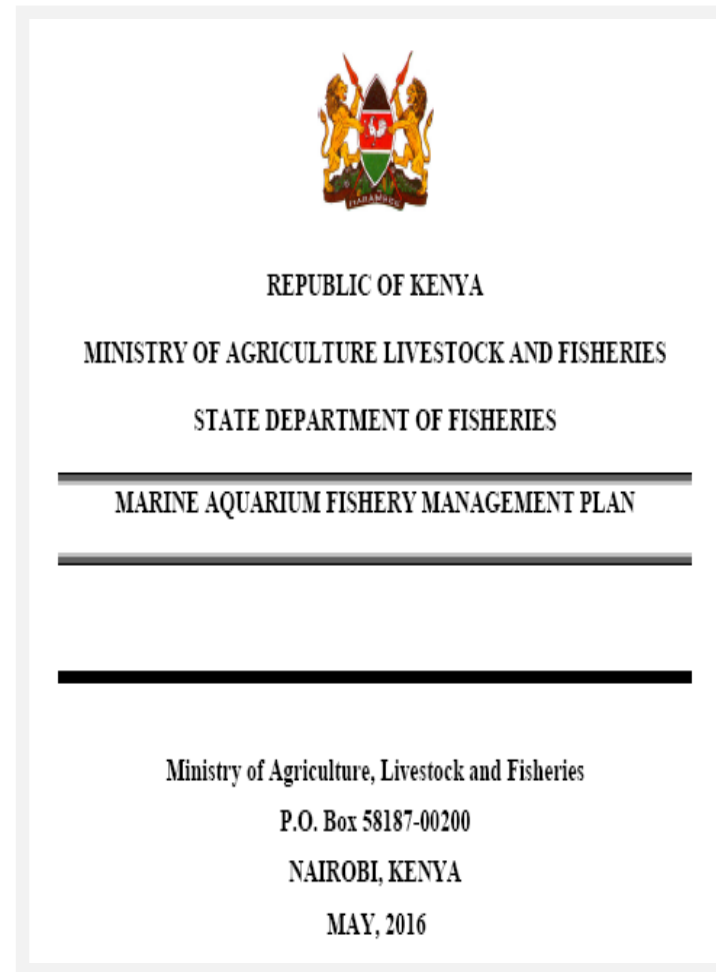
**Polymetallic
sulphides**



Other non-living



Linkages with Government and other Agencies in the formulation of management plans



County Governments
KeFS
Nema,
KEBs
KWS
KMA
KEFRI
CDA
KFS

Linkages with other Agencies

