



The State of Fisheries in Ghana

Science and Fisheries Management

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USAID\Sustainable Fisheries Management Project (SFMP)

USAID/Sustainable Fisheries Management Project (2015-2019) GOAL:

- To rebuild marine fisheries stocks and increase production through effective fisheries management strategies and adoption of responsible fishing practices
- To contribute to the Government of Ghana's fisheries policies and development objectives, and USAID Feed the Future Initiative
- Build research and education capacity of University of Cape Coast



IMPLEMENTATION:

- The Coastal Resources Center (CRC)
- Graduate School of Oceanography
- University of Rhode Island
- leads a team of partners in Ghana (HM, FoN, SNV, CW, DAA, SS, DQ, SSG)

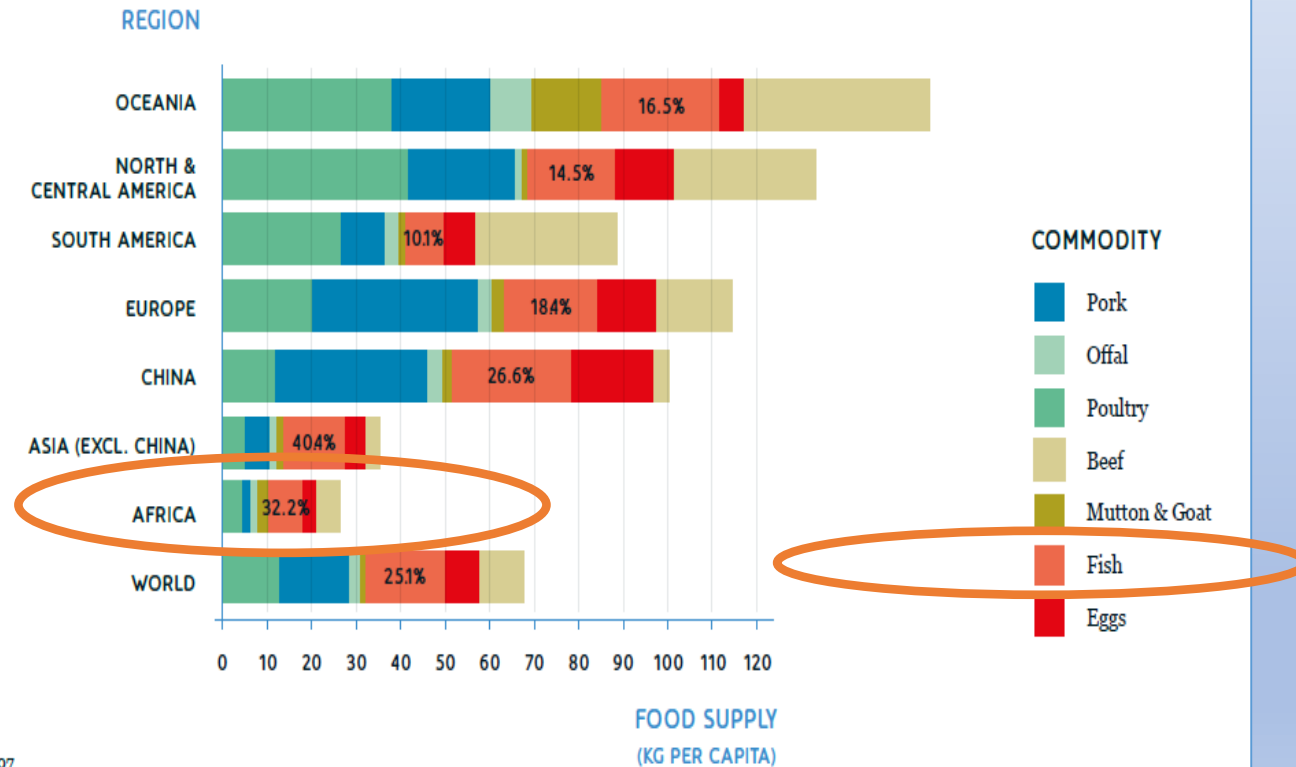


Africa has some of the highest per capita consumption of fish in the World

In Africa, highest in West Africa

ANIMAL SOURCE FOOD CONSUMPTION BY REGION

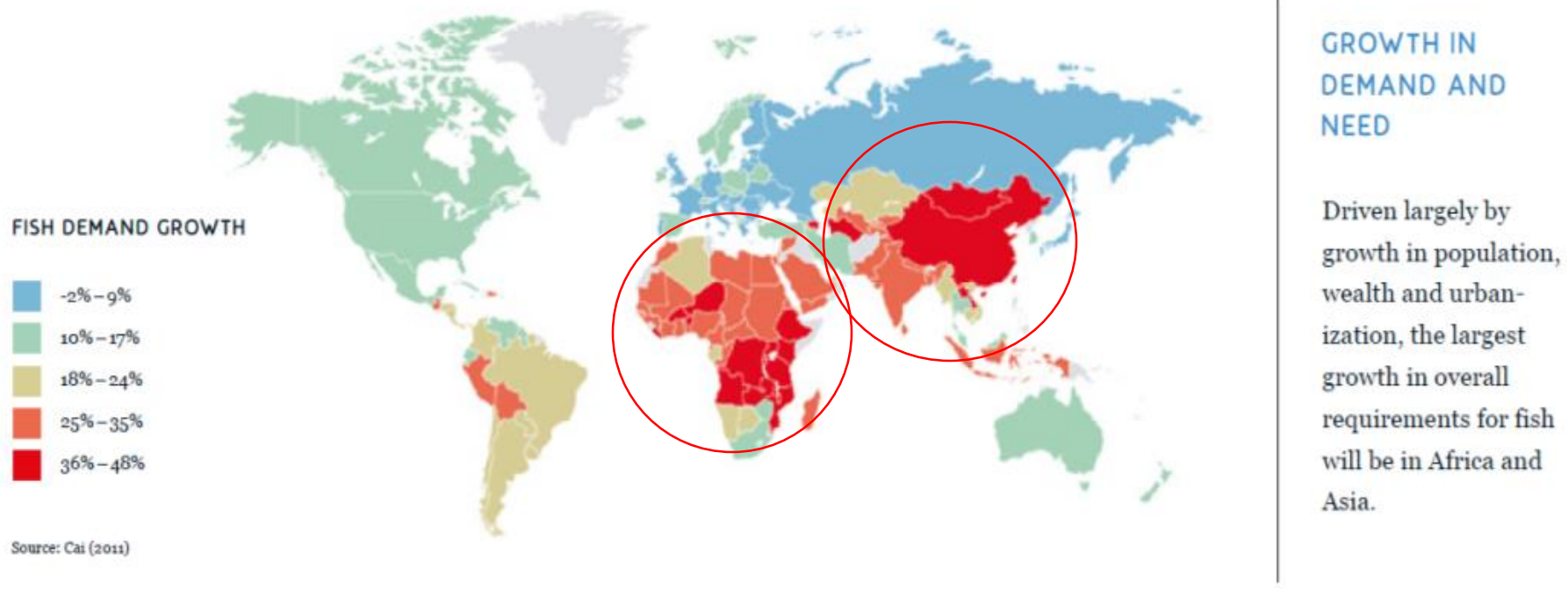
> Asia (excl. China) and Africa, the two continents with the lowest consumption of animal source foods, consume the highest proportion of fish.



Animal Source Food (ASF) from fish

Source: <http://www.fishingfuture.org/> Briefing paper 6

GROWTH IN OVERALL REQUIREMENTS FOR FISH



Animal Source Food (ASF) from fish

Source: <http://www.fishingfuture.org/> Briefing paper 6

Nutritional Value of Small Pelagic Fishes

Table 1. The nutrient content of fish and other foods (per 100g)*

Group	Scientific name /common name (local name/common name)	Protein (g)	Fat				Ca (mg)	Fe (mg)	Zn (mg)	Vitamin A (RAE) †	
			Total lipid (fat; g)	saturated fat (g)	Total PUFA (g)	EPA (g)					DHA (g)
Marine fish	Anchovy	20.35	4.84	1.28	1.637	0.538	0.911	147	3.25	1.72	15
	Herring	16.39	9.04	2.04	2.423	0.969	0.689	83	1.12	0.99	32
	Mackerel	18.60	13.89	3.26	3.350	0.898	1.401	12	1.63	0.63	50
	Milkfish	20.53	6.73	1.67	1.840			51	0.32	0.82	30
	Sardine	24.60	11.45	1.53	5.148	0.470	0.509	382	2.92	1.31	33
Other animal- sourced foods	Beef ground	14.30	30.00	11.29	0.696			24	1.64	3.57	0
	Chicken breast	14.70	15.75	3.26	3.340			19	1.11	0.78	0

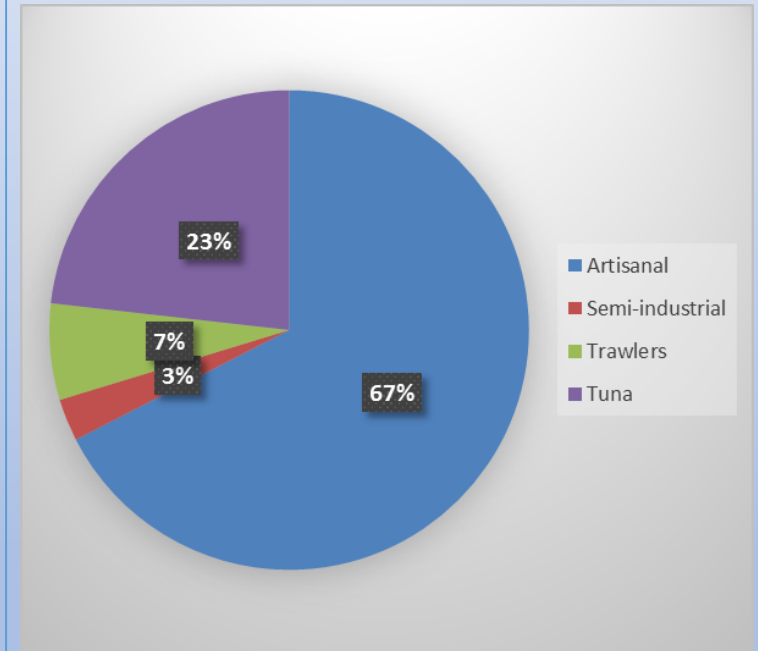
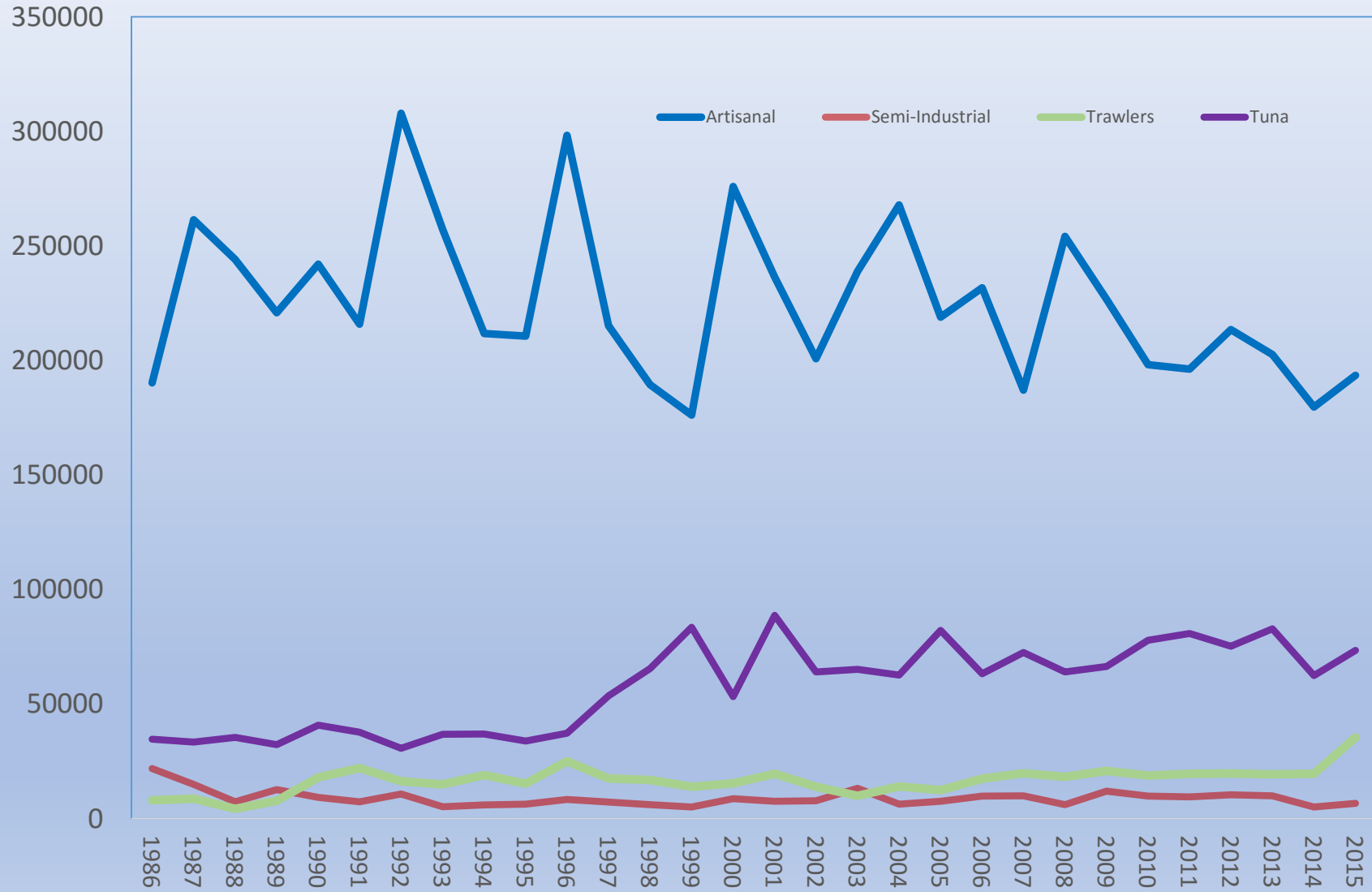
*Data from Food and Agriculture Organization
 † Bold indicates high content values

Adapted from: Kawarazuka and Béné, 2011. *Public health nutrition*, 14(11), 1927-1938.

MARINE FISHERIES PROFILE OF GHANA

- The marine fisheries sector is the most important source of local fish production, delivering more than 80% of the total supply
- Over 300 different species of commercially important fish are caught from marine sources in Ghana
- Most marine fish supply is from artisanal fishery and the most important marine resources are small pelagics (sardinella, anchovy and mackerel)
- Gross value is over \$300 million/year and the total revenues over \$1 billion
- Export value over \$100 million/year
- Direct jobs >200,000 and indirect jobs over 2 million
- Average consumption 23-26 kgs/capita
- A way of life for coastal communities

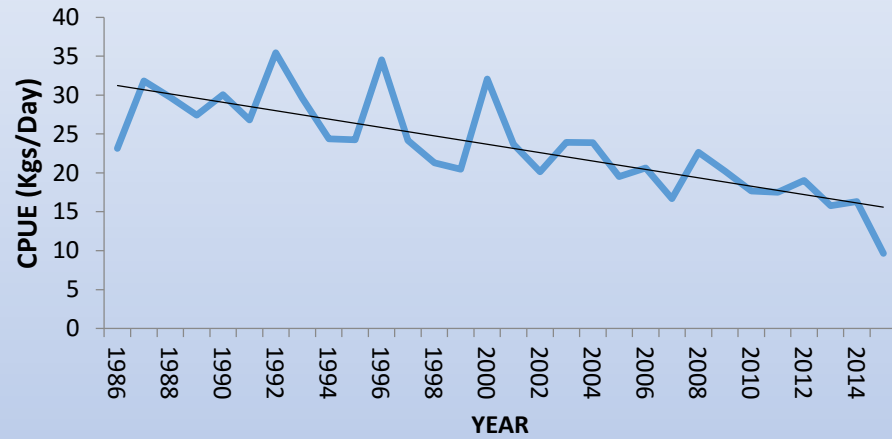




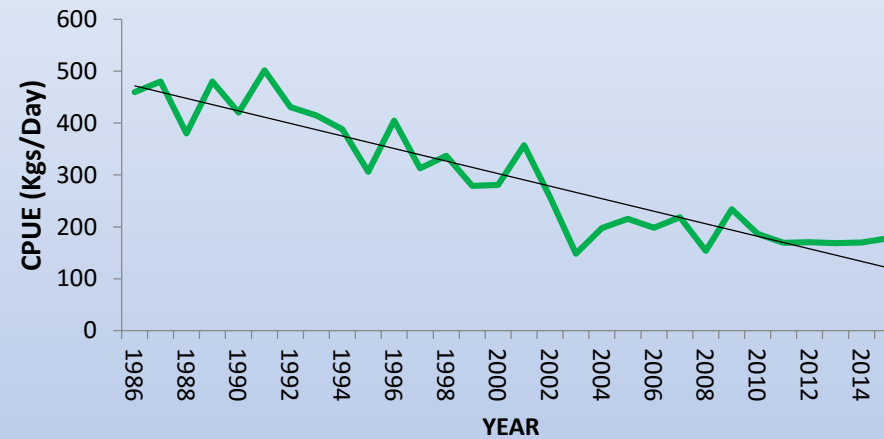


Fisheries Resource Indicator (CPUE)

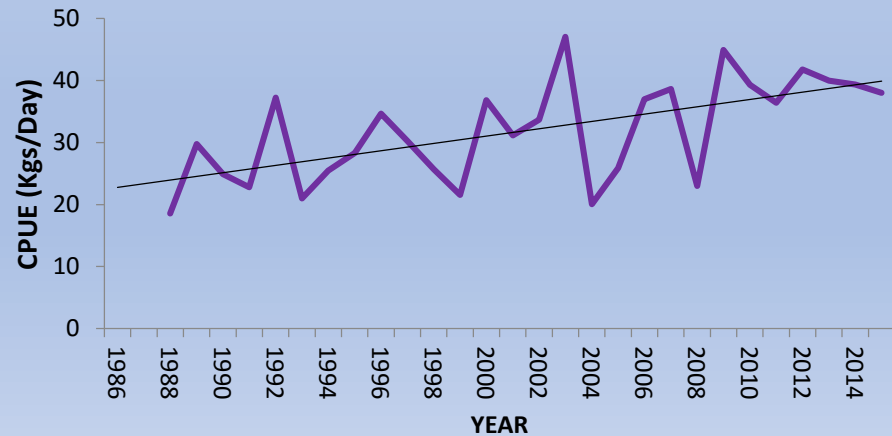
**Catch per unit of effort (CPUE)
Artisanal**



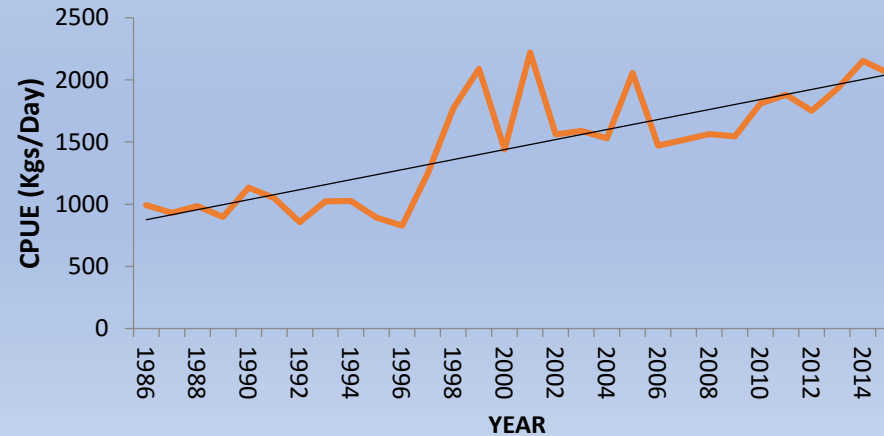
**Catch per unit of effort (CPUE)
Trawlers**



**Catch per unit of effort (CPUE)
Semi-Industrial**



**Catch per unit of effort (CPUE)
Tuna**



State of the fish stocks in Ghana (FAO)

- **The Marine fisheries resources of Ghana over the last decade have been fluctuating showing general decline in catches, revenues and mean size of fish.**
- **This is an indication of heavy exploitation at all fisheries ($F/F_{msy}=1.46$ and $B/B_{msy}=0.72$)**
- **Some targeted stocks are severely overfished (Sardinella, Sea breams, Groupers/Snappers and Cephalopods)**
- **Others are at full exploitation level (chub mackerel, skipjacks and carrangids $F/F_{msy}=1.0$)**
- **There are no stocks that are under-exploited**



Status of “small” pelagics stocks STWG



Sardinella aurita
(Eban, Kankama)



Sardinella maderensis
(Antebo, Adruku)



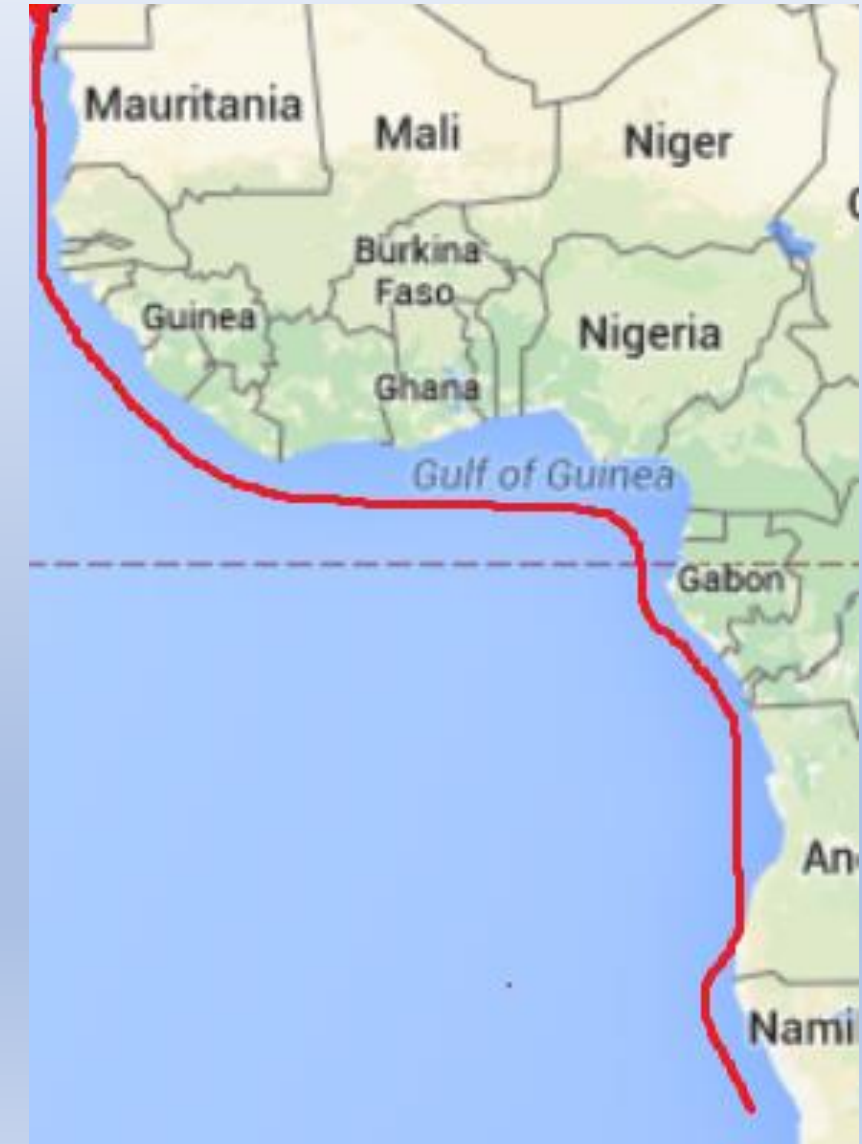
Engraulis encrasicolus
(Amoni, Abobi)



Scomber japonicas
(Saman, Awokongula)

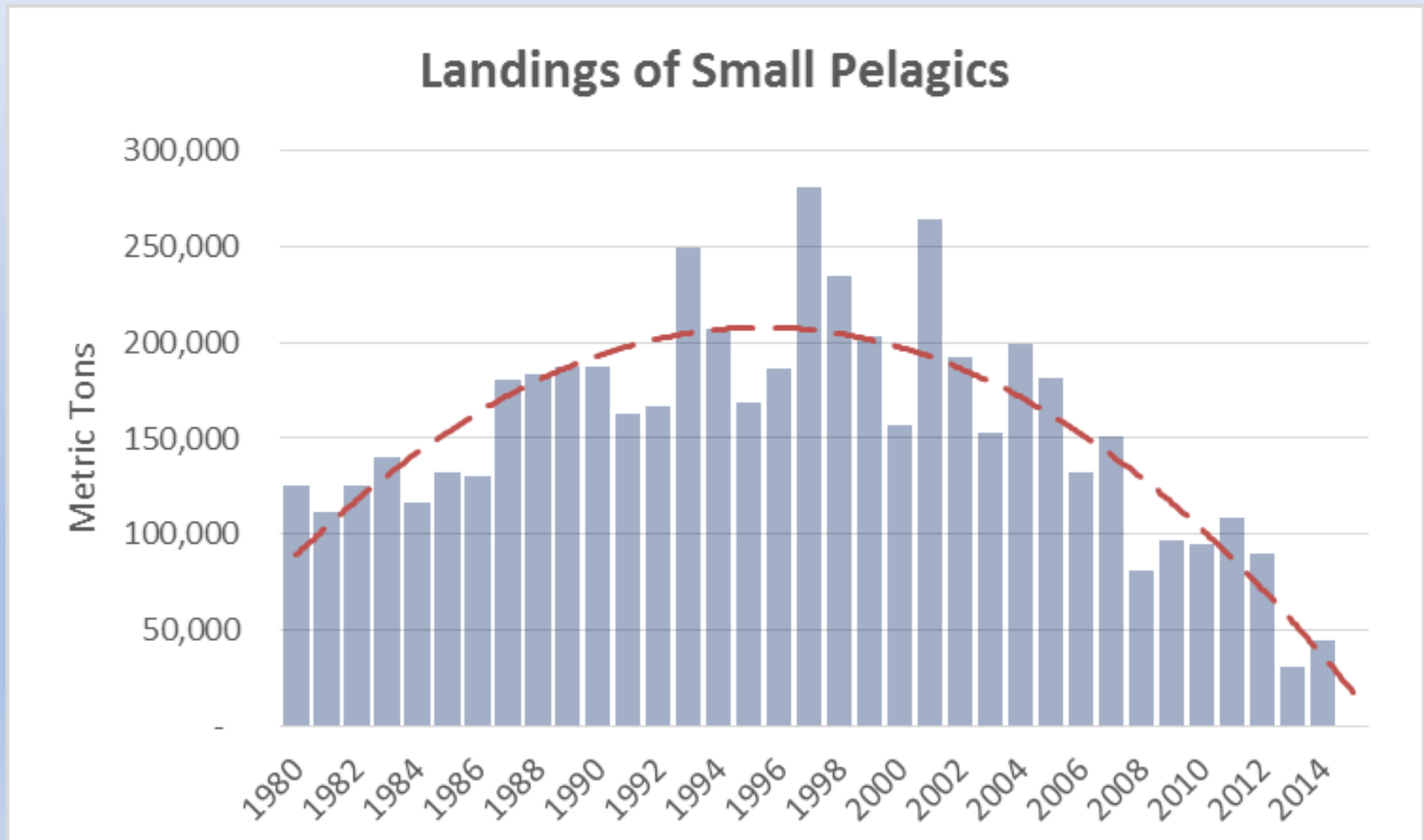
Sardinellas Biology and Stock distribution:

- Can be fished from Morocco to South Africa on the Atlantic Ocean of Africa.
- Strong seasonal migratory species
- Move in schools of fish from inshore to edge of shelf.
- Prefers clear saline water with a minimum temperature below 24°C.
- Juveniles tend to stay in nursery areas inshore.
- They join adult stocks offshore when they mature.
- Feeds mainly on zooplankton, especially copepods



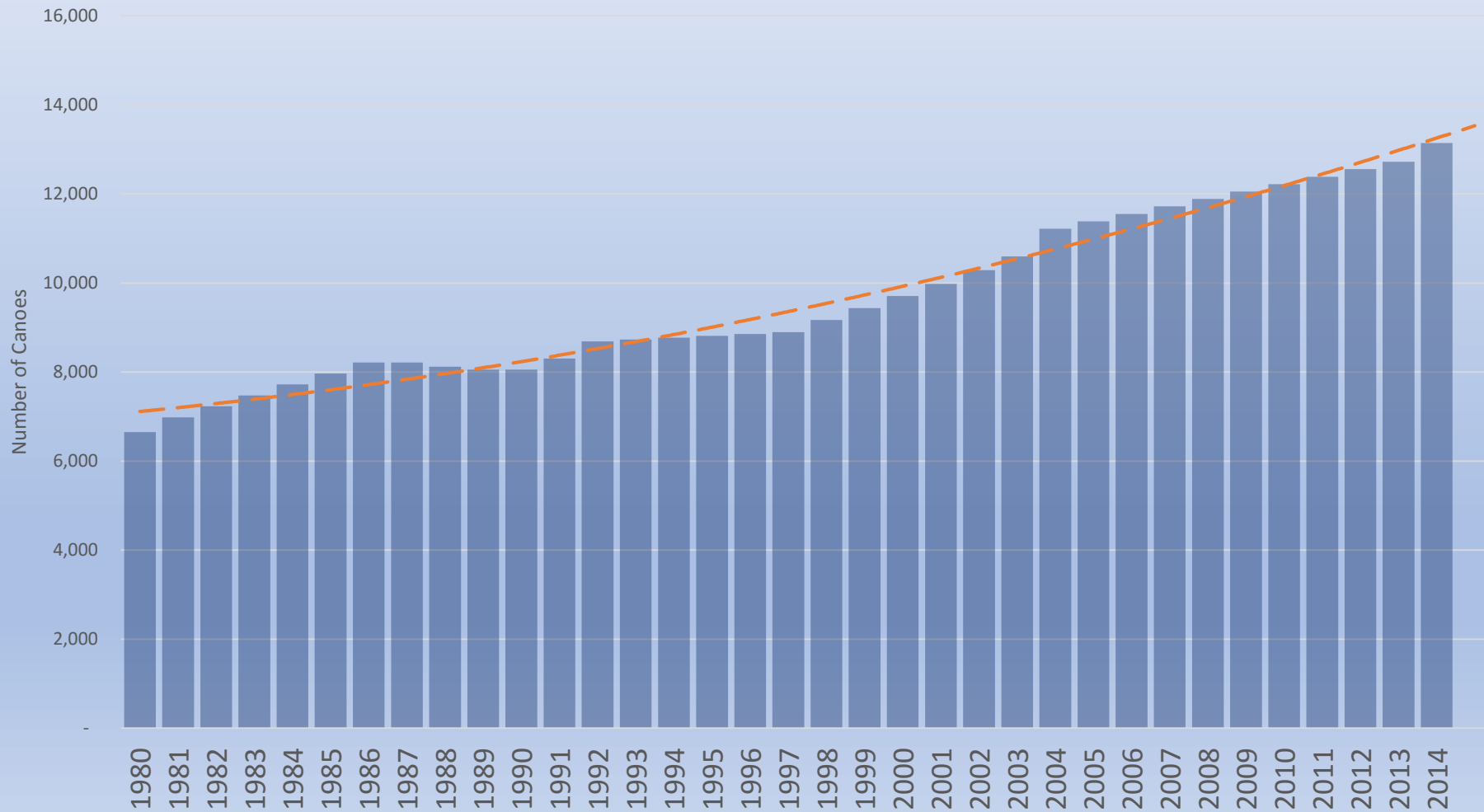


Landings trends



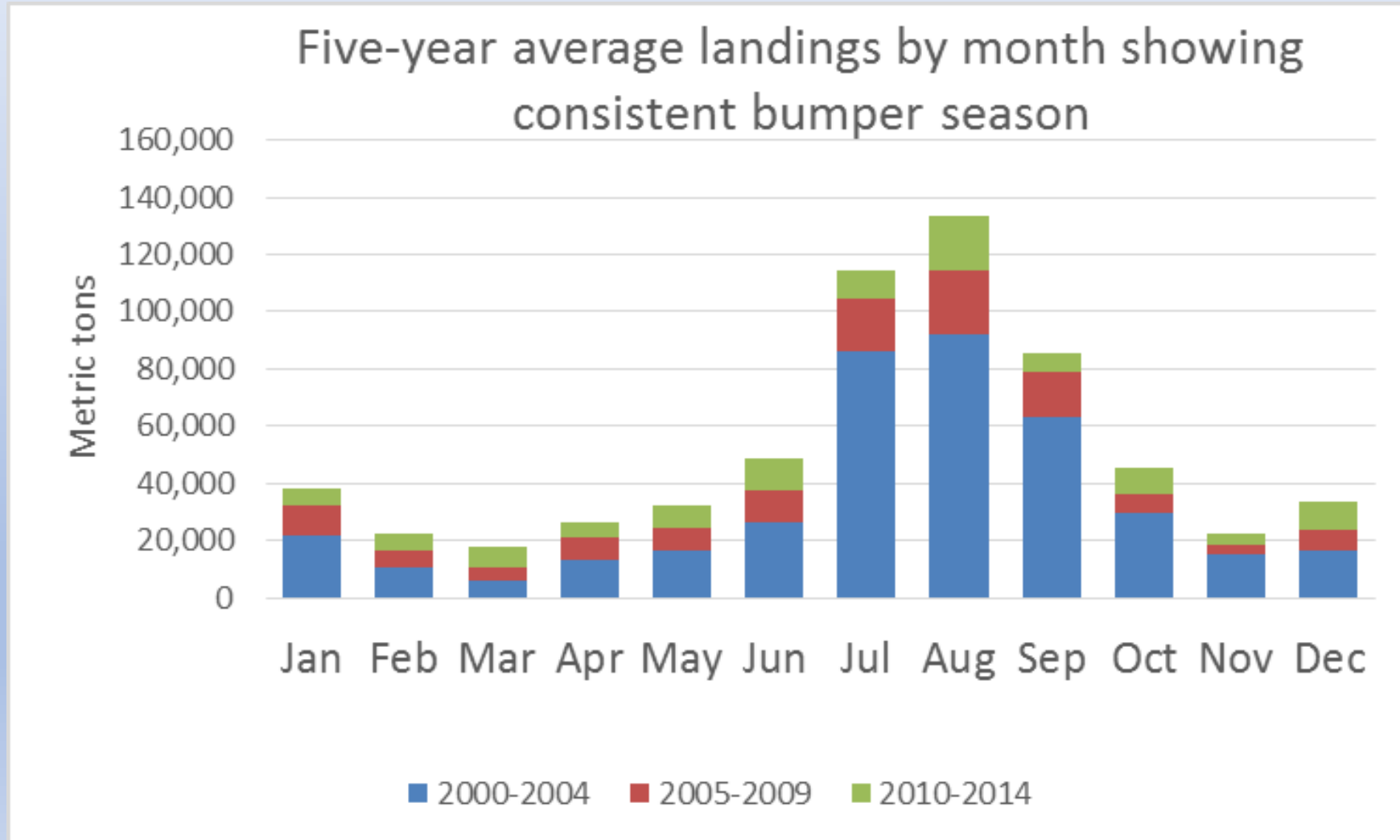
Effort trends

Number of Canoes in the artisanal fishery



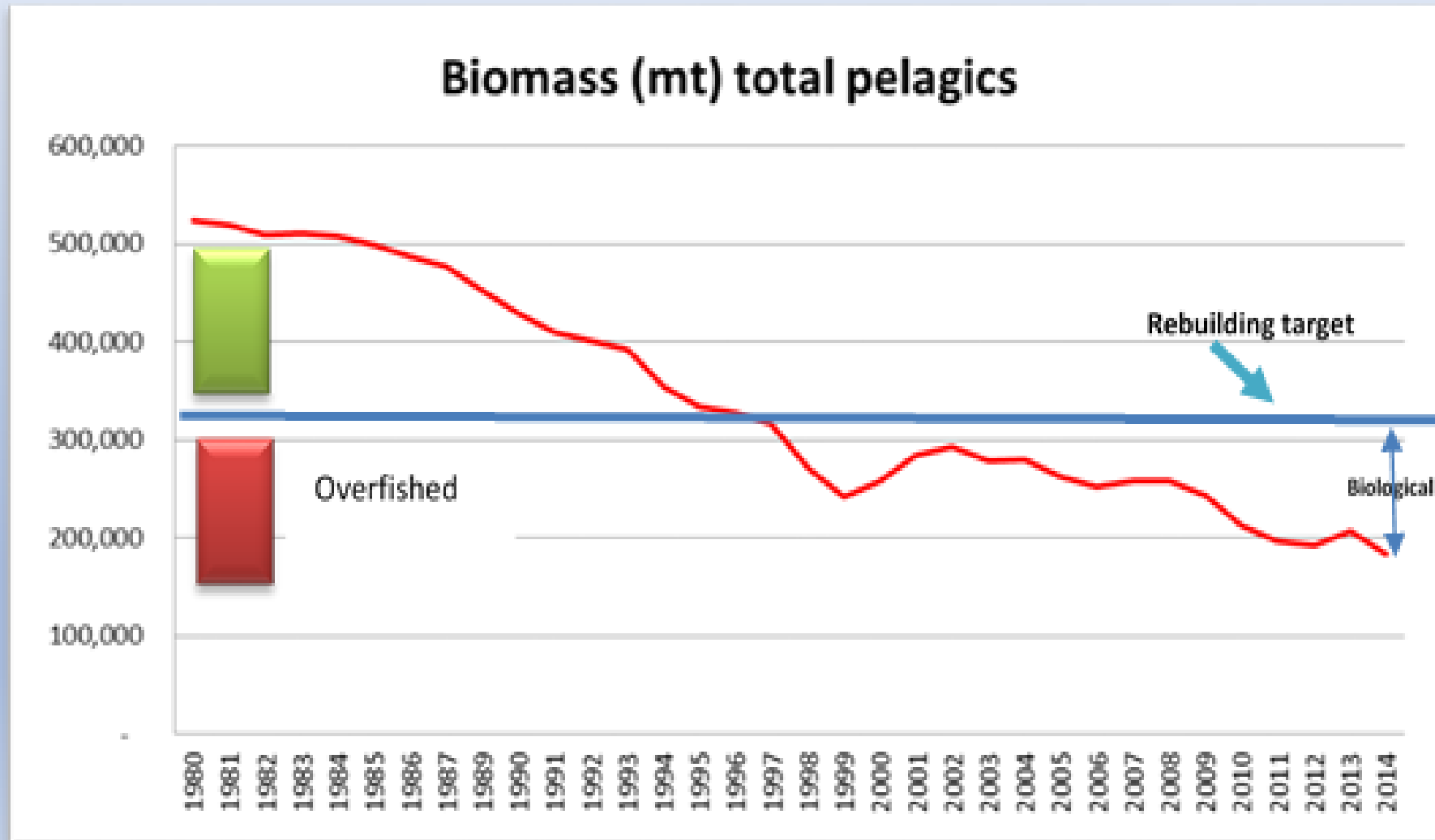


Small pelagic fishery is seasonal



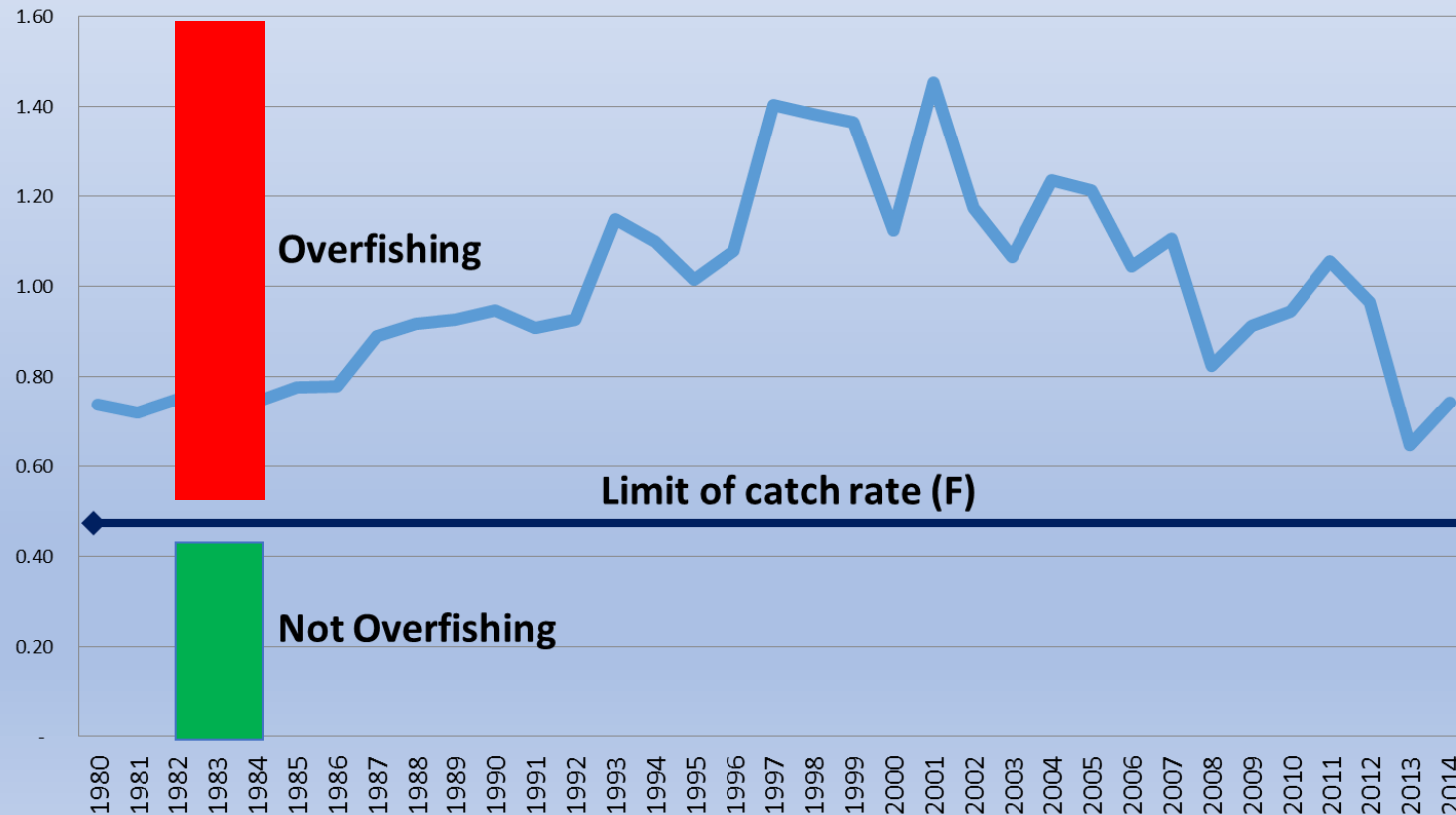


Biomass trends (tons)



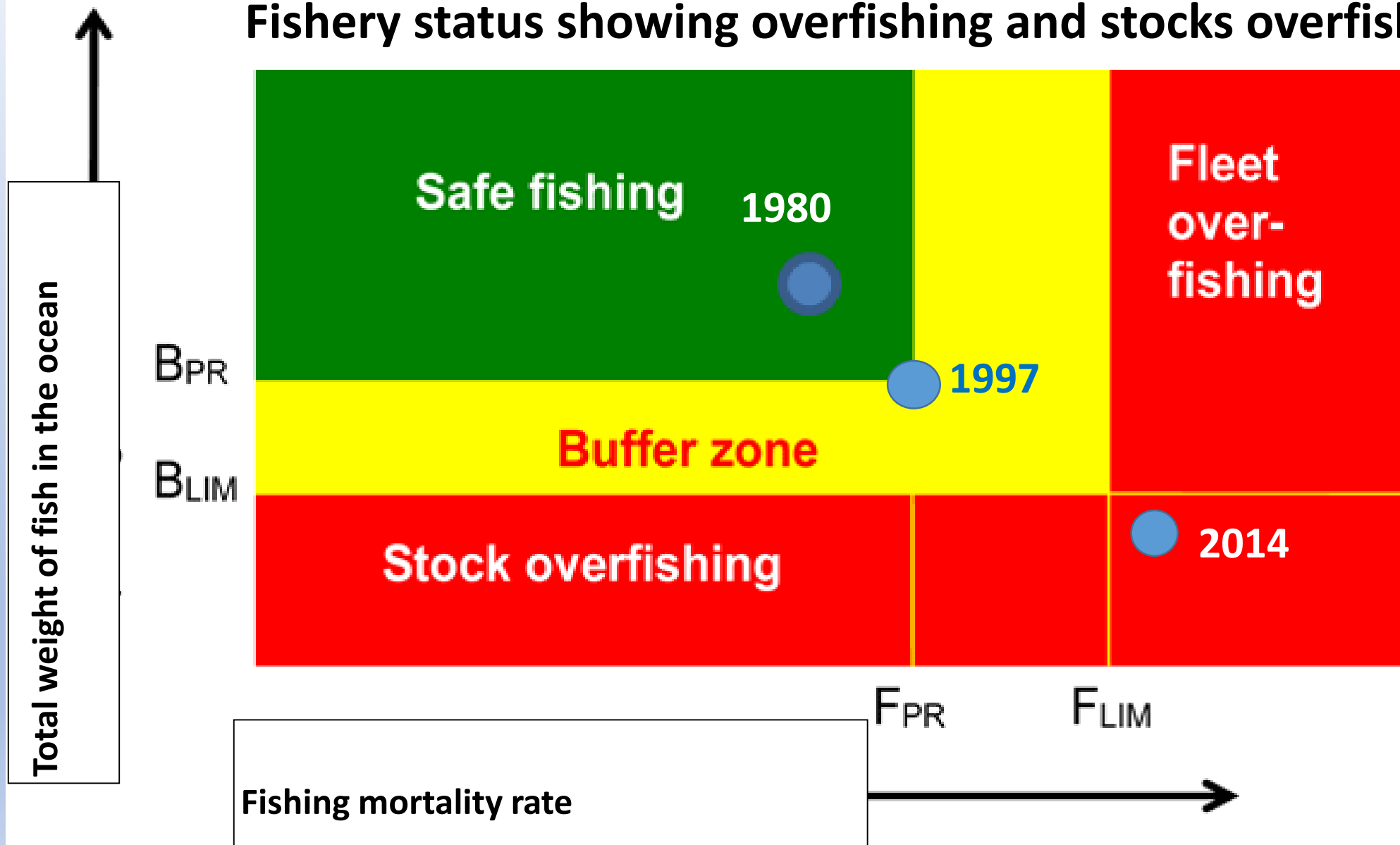
Fishing efficiency (rate of fishing F)

Fishing mortality (Annual catch rate) for small pelagic



Were are we ? Rebuilding targets

Fishery status showing overfishing and stocks overfished



Status of the stock (SFMP)

- **Stock of small pelagic resources in Ghana are severely overfished.**
- **Fishing mortality rate (removal rate) remains in excess of the sustainable level.**
- **If this trend continues, the stock will collapse and so will the fishery.**

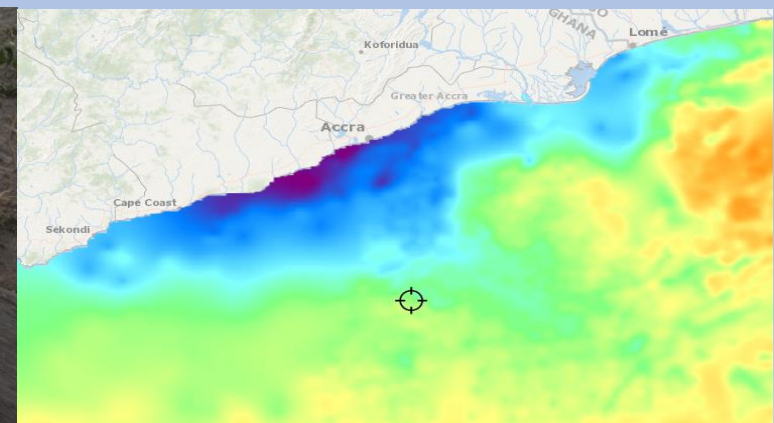
Causes of overexploitation

MAN MADE ACTIVITIES

- **OPEN ACCESS CAUSED OVERCAPACITY** (5000 – 12,000 canoes in 20 years) and **OVERFISHING** (average net increased and input of large foreign trawlers)
- **LACK OF ADEQUATE ENFORCEMENT CAUSED USE OF ILLEGAL METHODS AND GEARS** (small mesh, light fishing, Seiko, dynamite, chemicals...etc)
- **LACK OF ADEQUATE INFRASTRUCTURE CAUSED WASTEFUL FISHING PRACTICES LEADING TO POST HARVEST LOSSES**

ENVIRONMENTAL FACTORS

- **UPWELLINGS AND UNEXPECTED INTERACTIONS**
- **CLIMATE CHANGE**



CONSEQUENCES

- Loss of revenues and jobs
- Increased Poverty
- Loss of food security
- Loss of healthy ecosystem



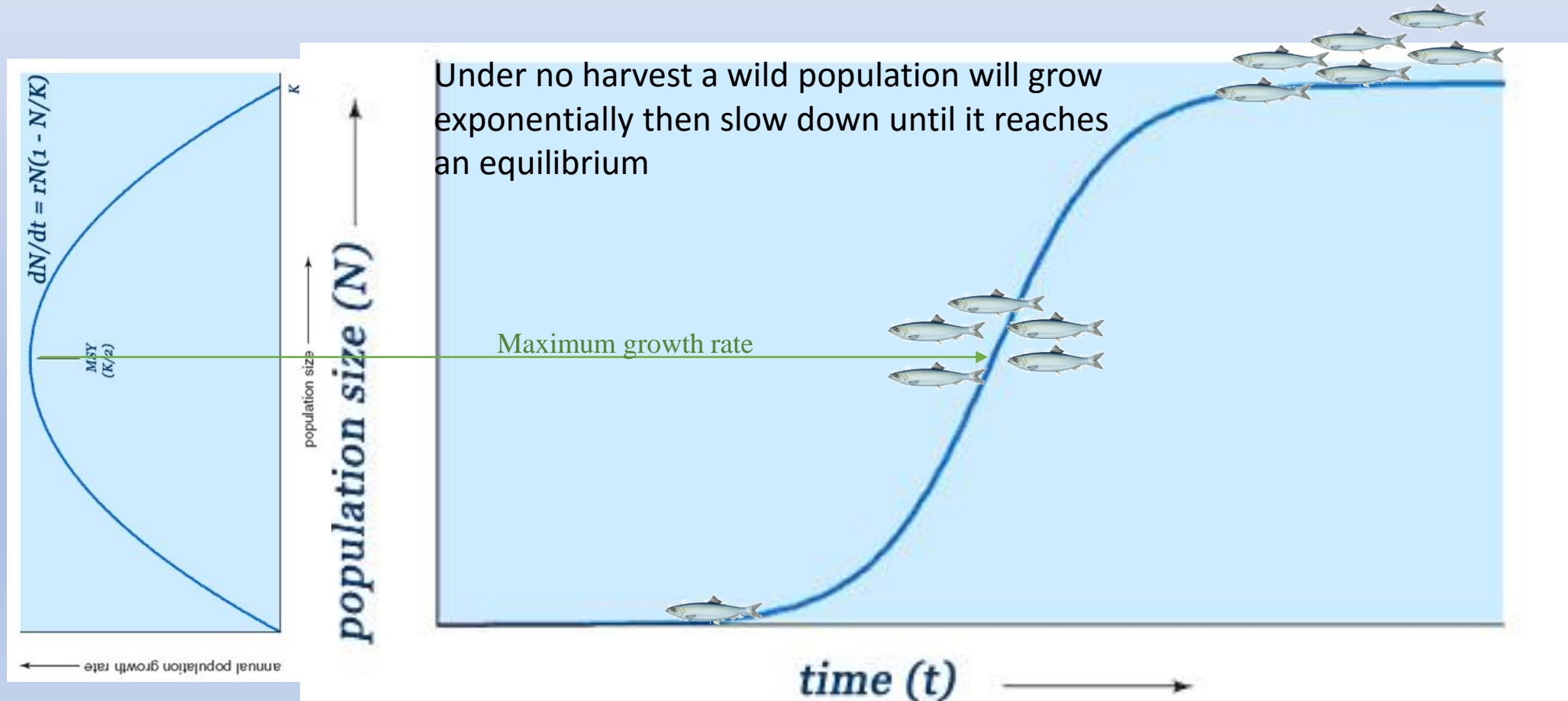
We can reverse this trend by implementing the National Fisheries Management Plan (MoFAD 2015-2019)

The implementation should be guided by:

- **Maximum Sustainable Yield**
- **Effort control**
- **Legislation**
- **Improved fisheries information**
- **Improved law enforcement**

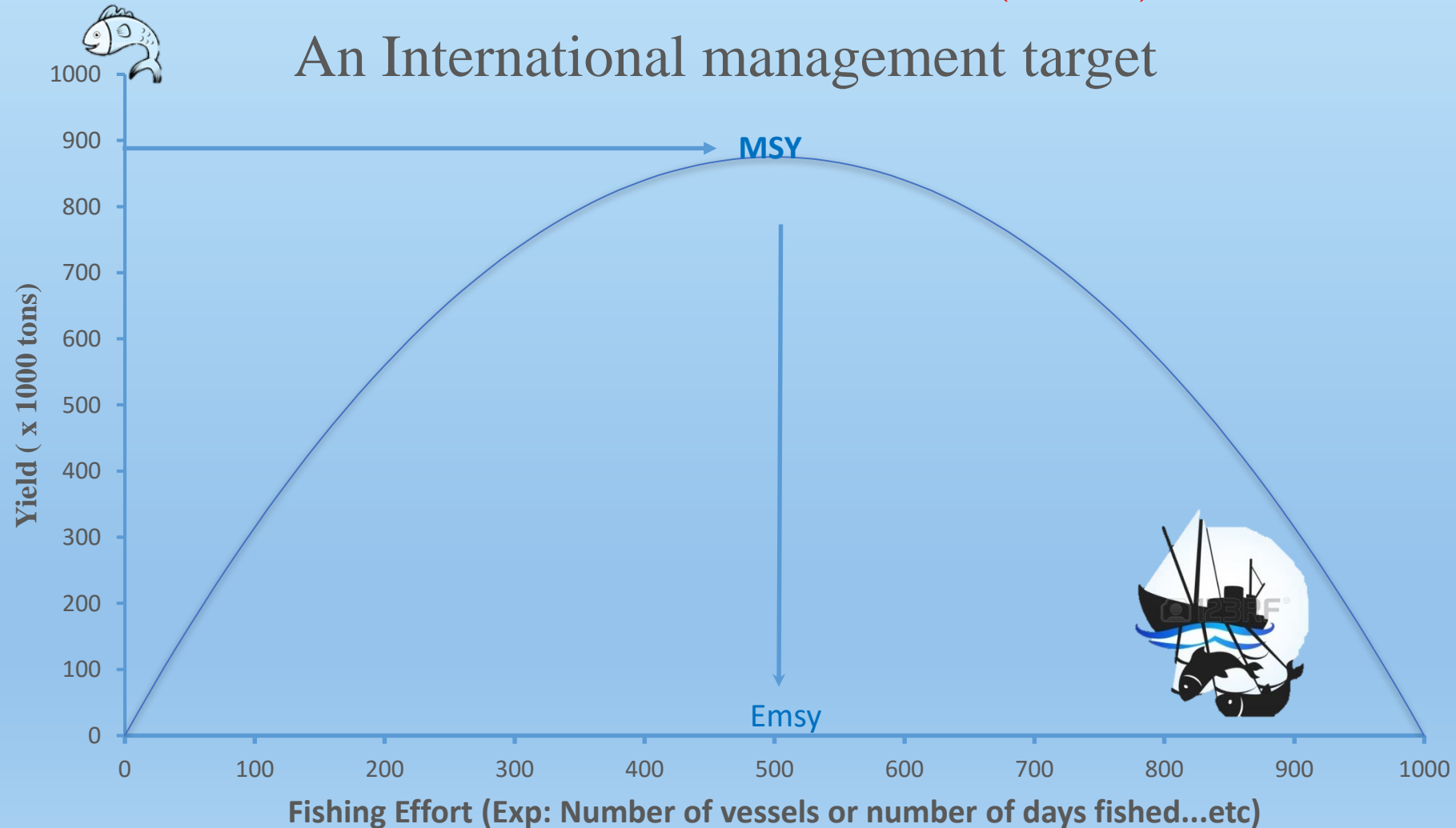


What is the Maximum Sustainable Yield ?



Maximum Sustainable Yield (MSY)

An International management target



Artisanal Canoe Fisheries of Ghana (Open Access)

	No of units in 2014	MSY mt	Units required to sustain fishery	Percent Reduction
Artisanal	> 12,000	239,913	9,095	24%
Inshore	403	13,713	272	32%
Industrial	107	30,637	48	55%

Effort control

- **Implement the laws governing licensing provisions of the Fisheries Act**
- **Moratorium on new licenses for artisanal fisheries (no more canoes)**
- **Reduce fishing effort for industrial trawlers by 50%**
- **Improve fisheries data collection system**
- **Implement closed season for all fisheries**



Legislation that Influence Fisheries

- Fisheries Act 625 (2002)
- Fisheries Regulations L.I. 1968 (2010)
- Fisheries Amendment Act 880 (2014)
- National Environmental Act 490 (1994)
- Endangered species Act (Wildlife & Forestry 571)



Improved information system

- Scientific and Technical Working Group needs to be formalized
- Fisheries Scientific and Survey Division needs more staff and more capacity
- Decentralize flow of fisheries information
- Training and capacity building

Improved Law enforcement

- Training and capacity building
- Logistical support
- Coordination with FEU
- Improve transparency



SUMMARY

- Fisheries sector is a significant socio-economic driver
- Many fish stocks are overfished
- NFMP (2015-2019) was approved and needs full force implementation
- Science-based fisheries management needs to guide implementation
- Improve legal framework and strengthen science and monitoring institutions
- Invest in post-harvest techniques, infrastructure and market strategies



USAID | **GHANA**
FROM THE AMERICAN PEOPLE



MOFAD
Fisheries
Commission

Thank you



The Sustainable Fisheries Management Project (SFMP)