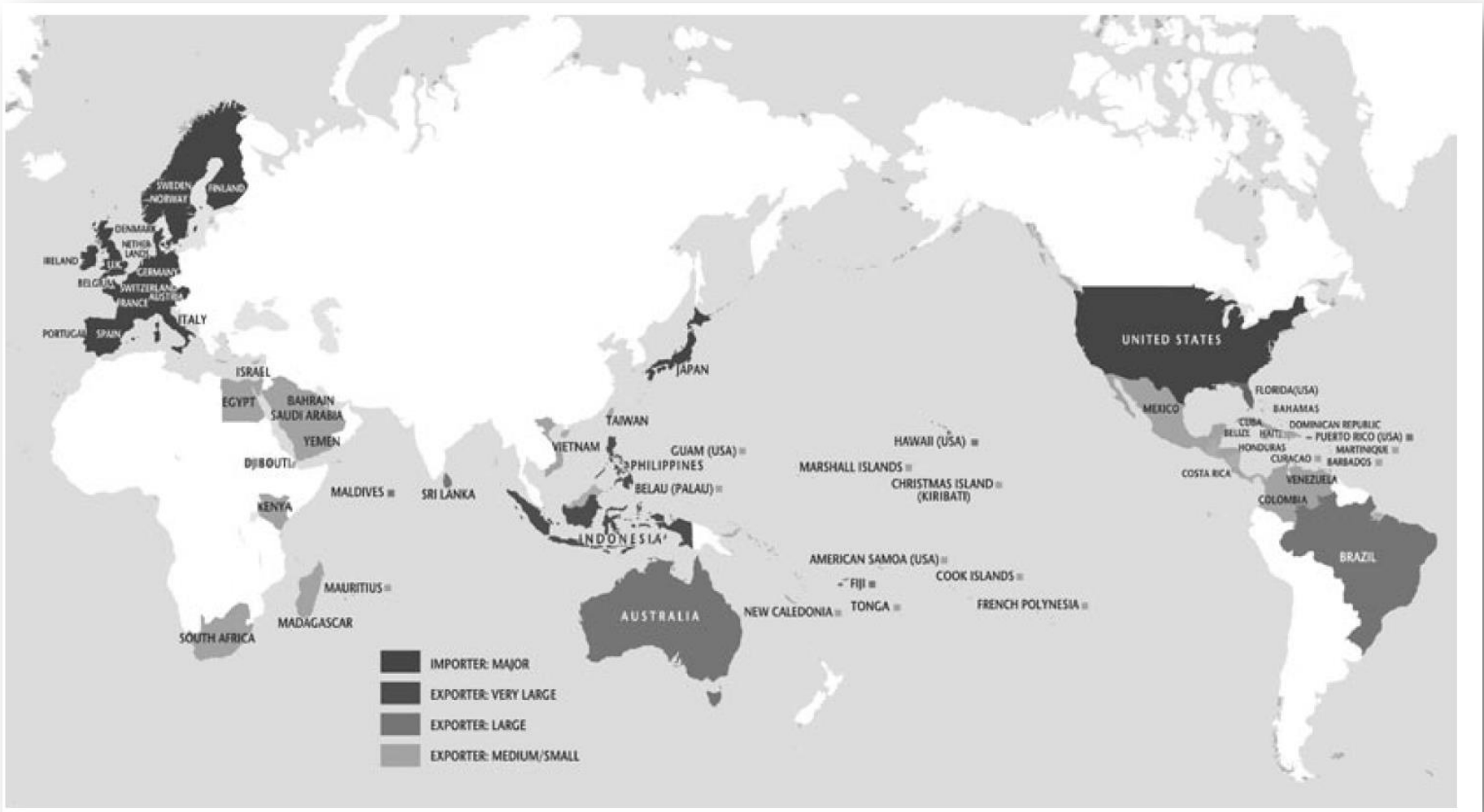


Marine Ornamental Fishery Status in Kenya

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KENYA MARINE AND FISHERIES RESEARCH INSTITUTE

Weight of Evidence Workshop
24th to 28th March 2014



Evolution of the global marine ornamental trade:

1930's: Sri lanka,

1950's: Hawaii and Philippines,

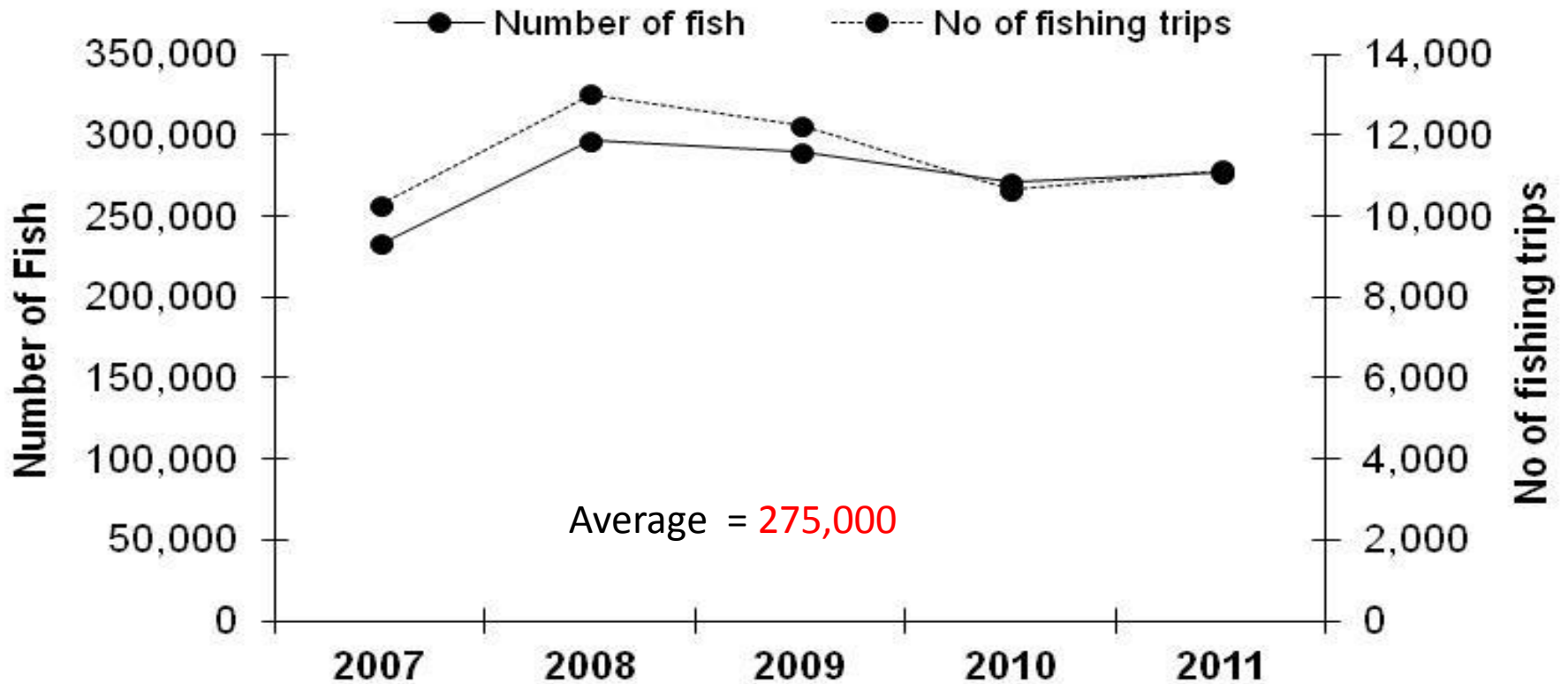
1960's: Other countries including Kenya

Bruckner et al 2005

Overview

- **Very selective:** juveniles reef fishes or small bodied cryptic species, specific species, sizes and sexes, rare species, and hybrids
- **Potential impacts of the fishery:**
 - Localized population depletions – “growth overfishing”
 - Loss of biodiversity – (overfishing of rare species)
 - Habitat degradation due to coral breakage, collection of essential microhabitat components e.g. anemones

Annual Catch Trends



Annual total number of ornamental fish harvested

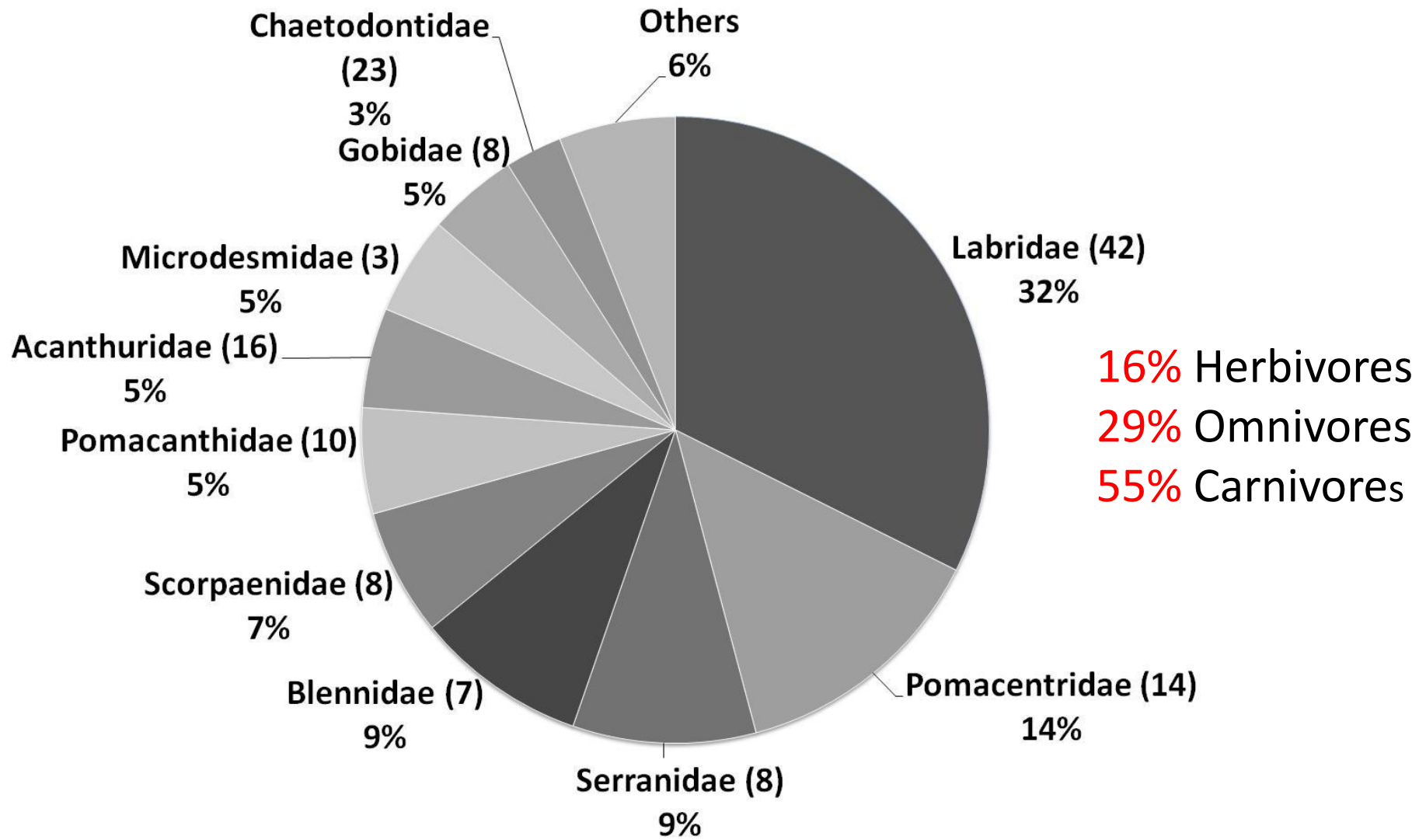
Officially reported estimate (SDF)

220,000 - 230,000

Logbook catch returns

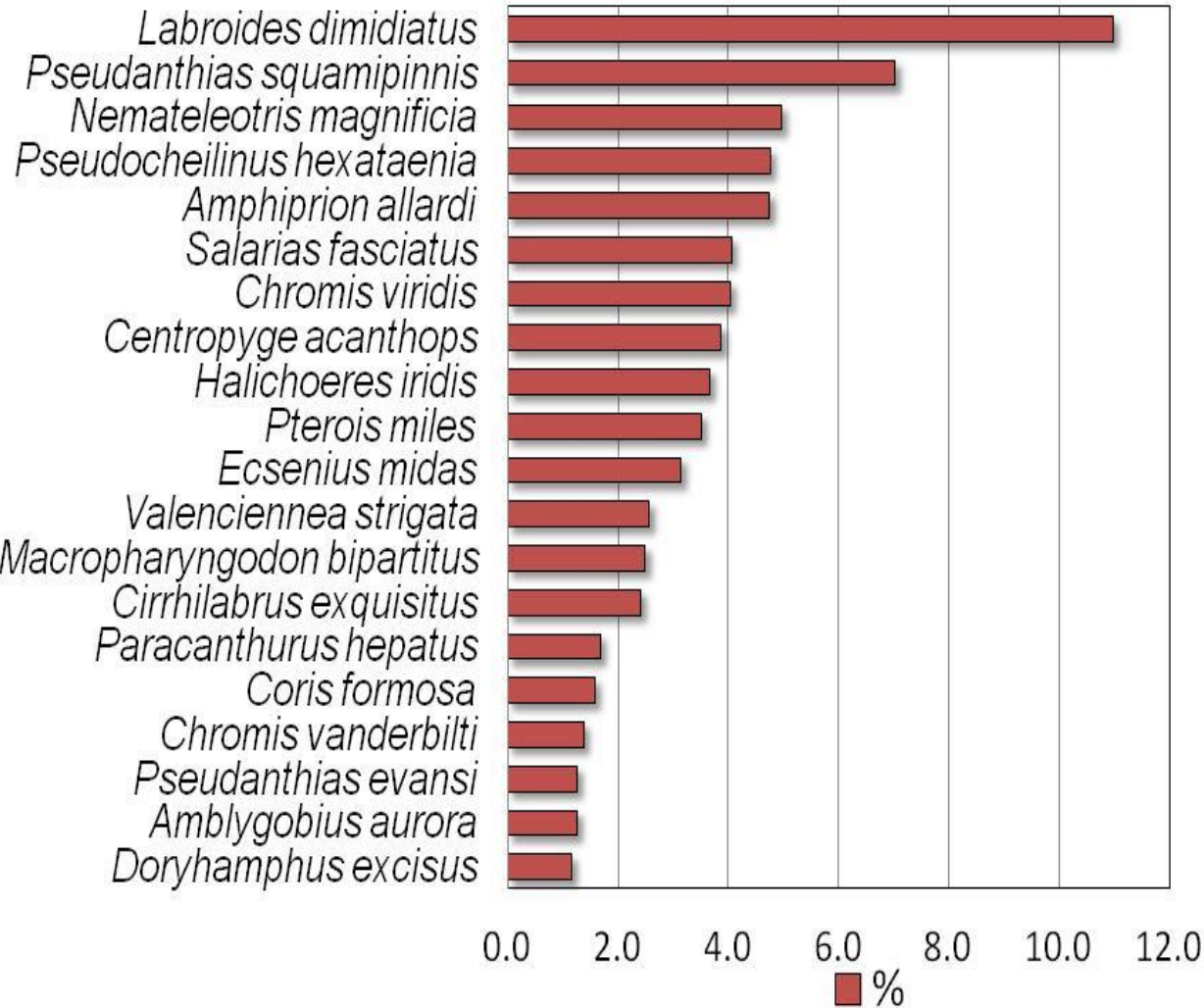
300,000 - 330,000

Catch Composition (Family Level)



Geotya

Composition of Top 20 Species (2006 - 2011)



1.



2.



3.



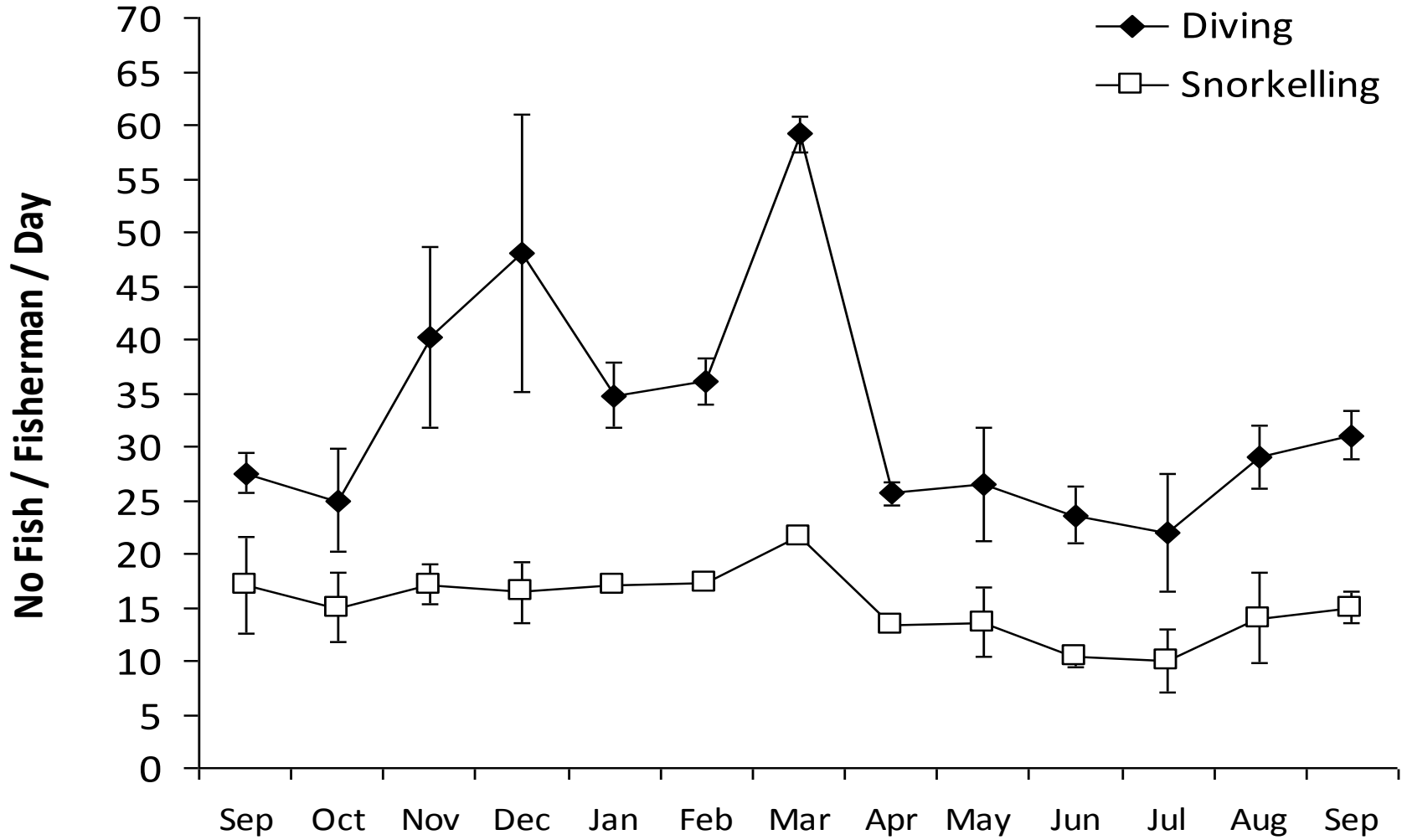
4.



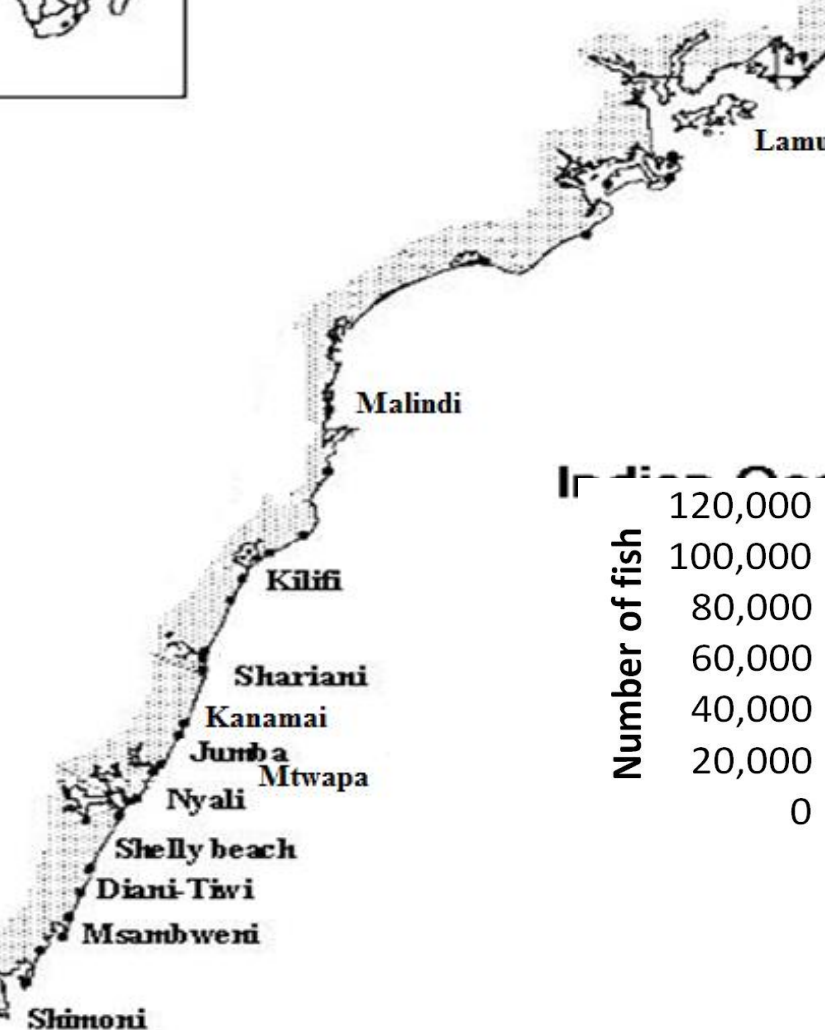
5.



Variation in CPUE

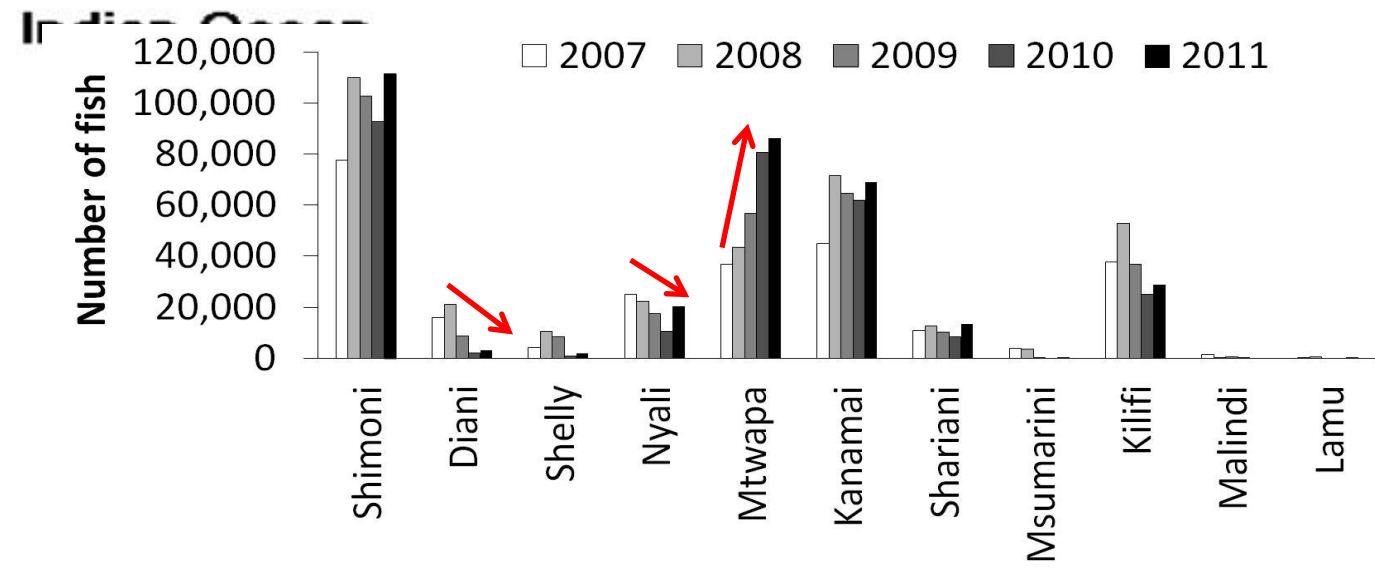


Spatial Distribution of Fishing Effort Catch by Fishing Method



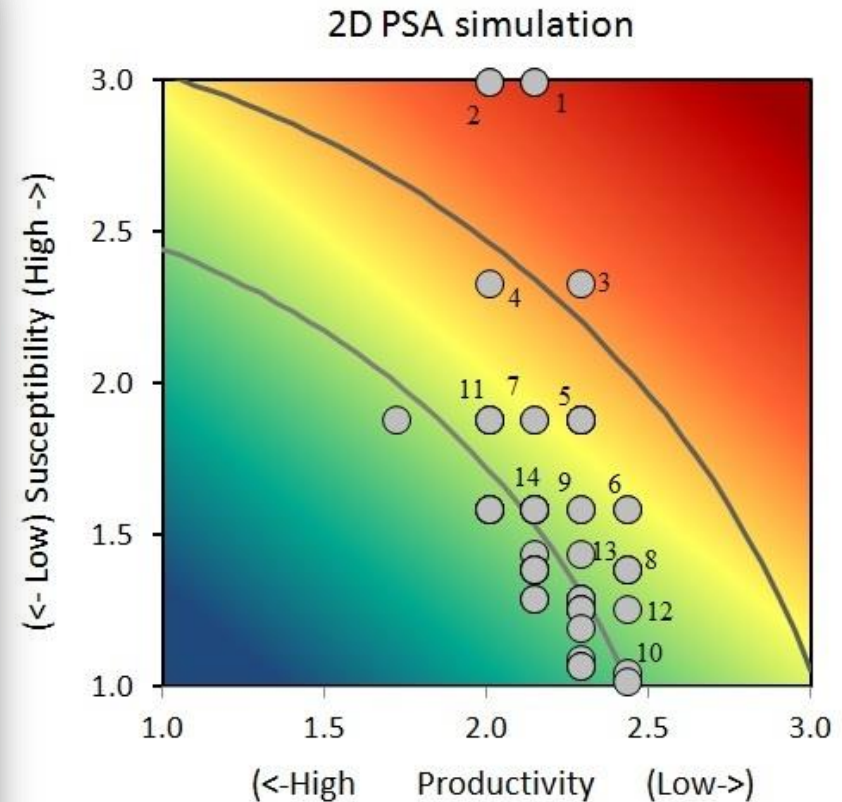
Fishing Site	Snorkelling (%)	Diving (%)	Total (%)	No. Species
Shimoni	33	67	33	197
Kanamai	99	1	20	191
Mtwapa	9	91	18	187
Kilifi	64	36	12	190
Ukunda	98	2	5	153
Lamu Nyali	87	13	5	180
Shariani	96	4	3	164
Shelly	84	16	2	152
Msumarini	96	4	1	116
Malindi	98	2	0.5	95
Lamu	100	0	0.5	38
Total	79	21		216

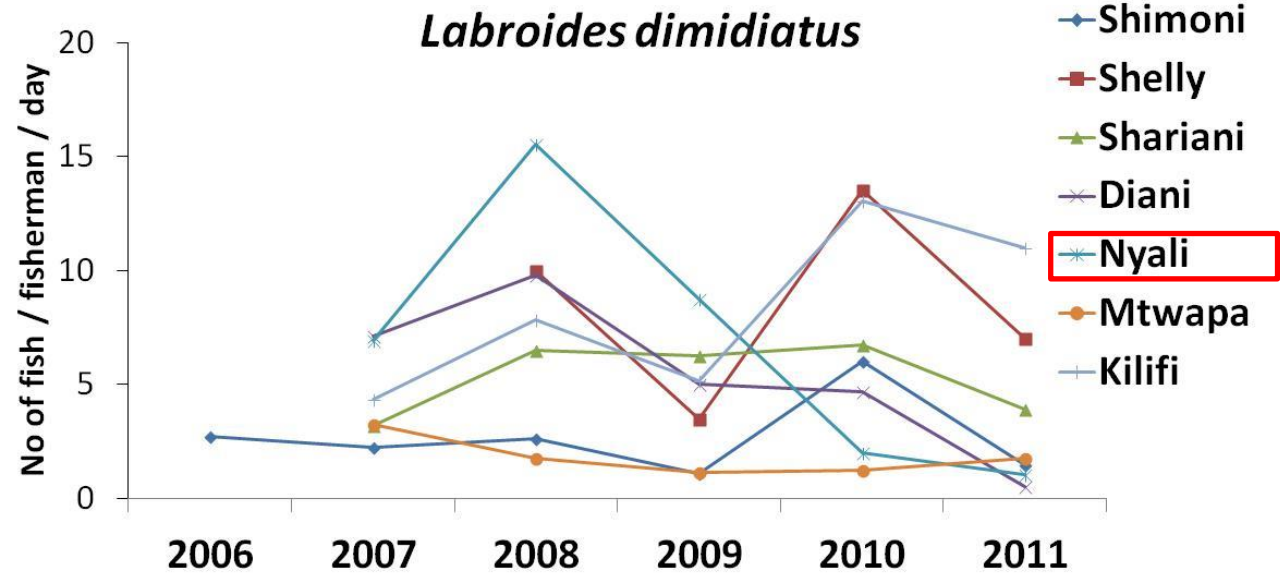
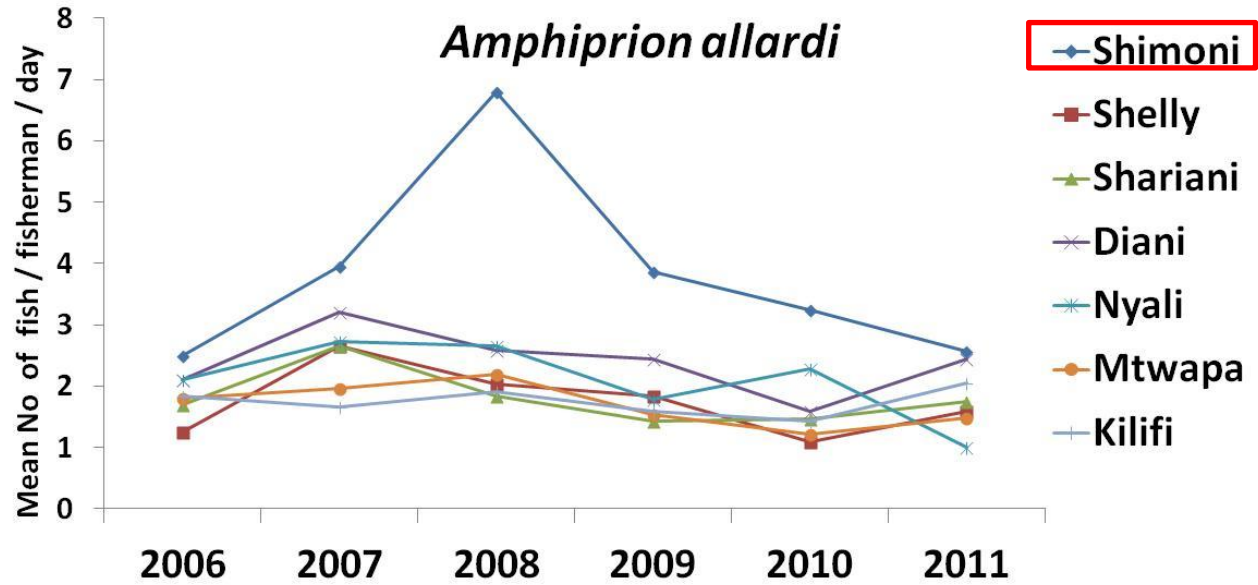
83%



Risk Assessment: Productivity Susceptibility Analysis (Hobday et al 2007)

Risk	Common Name	Latin Name	Vulnerability Category
1	Yellowbar angelfish	<i>Pomacanthus maculosus</i>	High
1	Goldtail angelfish	<i>Pomacanthus chrysurus</i>	High
2	Twobar anemonefish	<i>Amphiprion allardi</i>	High
2	Skunk clownfish	<i>Amphiprion akallopisos</i>	High
3	Clown triggerfish	<i>Balistoides conspicillum</i>	High
4	Palette surgeonfish	<i>Paracanthurus hepatus</i>	Moderate
5	Map puffer	<i>Arothron mappa</i>	Moderate
5	Peppered butterflyfish	<i>Chaetodon guttatisimus</i>	Moderate
5	Somali butterflyfish	<i>Chaetodon leucopleura</i>	Moderate
5	Yellowhead butterflyfish	<i>Chaetodon xanthocephalus</i>	Moderate
5	African butterflyfish	<i>Chaetodon dolosus</i>	Moderate
5	Zanzibar butterflyfish	<i>Chaetodon zanzibarensis</i>	Moderate
5	Rainbow wrasse	<i>Halichoeres iridis</i>	Moderate
6	Yellow spotted triggerfish	<i>Pseudobalistes fuscus</i>	Moderate
6	Rare wrasse	<i>Macropharyngodon bipartitus</i>	Moderate
7	Saddleback butterflyfish	<i>Chaetodon falcula</i>	Moderate
7	Stellate puffer	<i>Arothron stellatus</i>	Moderate
8	Pennant coralfish	<i>Heniochus acuminatus</i>	Moderate
8	Black and white snapper	<i>Macolor niger</i>	Moderate
8	Bicolor cleaner	<i>Labroides bicolor</i>	Moderate
9	Blackback butterflyfish	<i>Chaetodon melannotus</i>	Moderate
9	Teardrop butterflyfish	<i>Chaetodon unimaculatus</i>	Moderate
10	Blacktail chromis	<i>Chromis nigrura</i>	Moderate
11	White spotted boxfish	<i>Ostracion meleagris</i>	Moderate
11	Yellow boxfish	<i>Ostracion cubicus</i>	Moderate
11	Sailfin tang	<i>Zebrasoma veliferum</i>	Moderate
11	Desjardin's sailfin tan	<i>Zebrasoma desjardini</i>	Moderate
12	Spotted wrasse	<i>Anampses meleagrides</i>	Moderate
13	Bluestreak cleaner Wrasse	<i>Labroides dimidiatus</i>	Moderate
14	Ribbontail stingray	<i>Taeniura lymma</i>	Moderate
14	Blackspotted puffer	<i>Arothron nigropunctatus</i>	Moderate
15	Emperor angelfish	<i>Pomacanthus imperator</i>	Moderate
15	Semicircle angelfish	<i>Pomacanthus semicirculatus</i>	Moderate
15	Harlequin filefish	<i>Oxymonacanthus longirostris</i>	Moderate
15	Lyretail hogfish	<i>Bodianus anthioides</i>	Moderate
15	Persian blenny	<i>Ecsenius midas</i>	Moderate
15	Mozambique fangblenny	<i>Meiacanthus mossambicus</i>	Moderate
15	Leopard blenny	<i>Exallias brevis</i>	Moderate





Management Measure	Data and information needs
Temporal closures:	Biology and population dynamics of key target species
Spatial closures:	Abundance , distribution and size structure in fished and protected areas
Size limits:	Biological information e.g. size at maturity, growth
Catch quotas:	Estimates of yield per recruit
Species restrictions:	All above, and post harvest mortality data
Zoning:	Socioeconomic assessments
Others:	Research experiments, Post harvest survival data

Thanks