

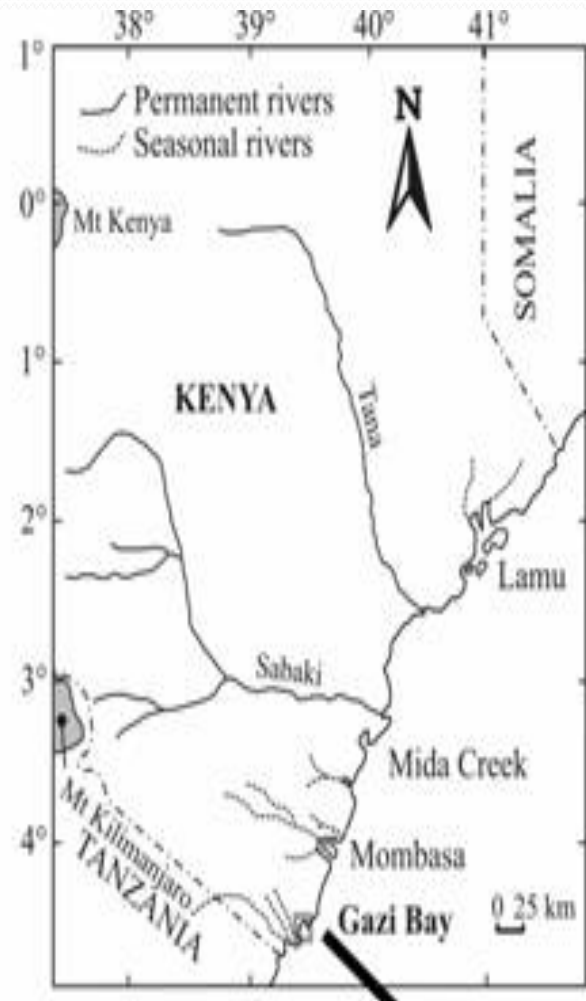
Making small scale semi- intensive shrimp aquaculture work at the Kenya coast

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Status of Marine fisheries in Kenya



- 640 km coastline
- Annual landing - 5 - 8,000 m/tons/yr
 - Approx. 3-4% of national fishery
- Contribution from coastal aquaculture is almost nil.

History of coastal aquaculture in Kenya

- 1970's – FAO/GOK aquaculture prospecting along the coast
- 1986 – Trial shrimp farming at Ngomeni with a peak of 708kg/ha.
- Currently Ngomeni farm operates at less than 200 kg/ha/yr
- Small fish farming activities in Mtwapa yields less than 170 kg/ha



Environmental Problems of coastal aquaculture

- Habitat destruction e.g. mangroves
- Pollution: Biological and chemical pollution
- Loss of genetic resources



Opportunities for coastal aquaculture development in Kenya

- **High subsistence** dependence on fisheries at the coast
- Suitable sites: more than 3000 ha suitable for aquaculture (FAO, 1987)
- Increased community interests in aquaculture activities
- Presence of cultivable species (both fin and shell fish)
- Government Focus – Aquaculture for poverty reduction
- World Bank/KMFRI – KCDP project

Challenges facing coastal aquaculture in Kenya

- **Research and training** – very few scientists devoted to coastal aquaculture
- **Lack of extension** and technical services
- Land tenure issues: most land under trust land
- Community fatigue – lack of continuity
- Lack of policy on aquaculture – still under the Fisheries Act (cap 37)

Experimental Shrimp farming in Kenya

- **Four** experimental ponds of between 144-204m² were used
- **3 hapas** per pond were used as experimental units
- There were 4 treatments:
 - chicken manure,
 - Cow-dung,
 - commercial urea
 - control



Hapas in experimental ponds

Study Parameters

- Water quality
 - Physical, chemical and biological
- Growth monitoring
 - SGR%/day
 - NFY kg/ha
 - AP k/ha/yr
- Abundance of natural population

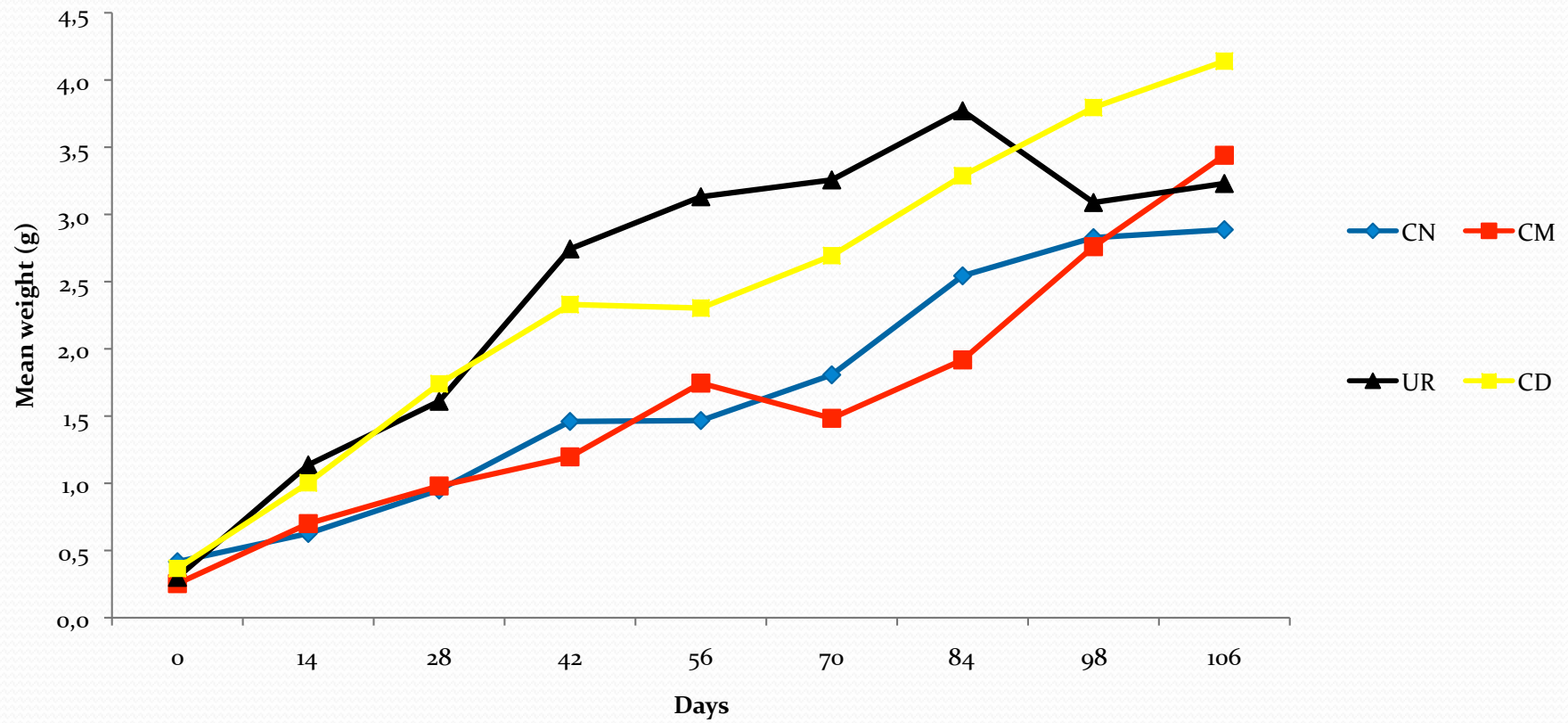
Results

- Water quality parameters within acceptable range
- Shrimp fry available throughout the study period (7 months)
- Growth rate, NFY and AP low



Seining in the mangrove creek

Growth trends



Production

Treatment	Final wt (g)	SGR %	NFY (Kg/ha)	AP (Kg/ha/yr)
1	2.87 ± 0.20 a	1.73 ± 0.34 a	12.35 ± 0.53 a	42.48 ± 1.82 a
2	3.44 ± 0.09 b	2.34 ± 0.48 b	15.93 ± 0.16 b	54.86 ± 0.56 b
3	3.23 ± 0.33 ab	2.13 ± 0.68 ab	14.65 ± 1.85 ab	50.45 ± 3.68 ab
4	4.14 ± 0.08 c	2.18 ± 0.48 ab	18.87 ± 0.37 c	64.97 ± 1.30 c

Research gaps

- How to improve productivity
- Polyculture- what is the best combination
- Which scale to operate on



What needs to be done

- **Capacity building** in all aspects of aquaculture: pond construction, hatcheries etc.
- **Extension services**
- Development of hatcheries
- Exchange/educational visits
- Funding opportunities
- Demonstration/ small scale pilot farms with successful aqua stories e.g. the Tambak system in SEA



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