

Progress in Establishing a Gambian National Shellfish Sanitation Program (GNSSP)



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USAID
FROM THE AMERICAN PEOPLE



REPUBLIC OF THE GAMBIA



COASTAL RESOURCES CENTER

University of Rhode Island

Goal

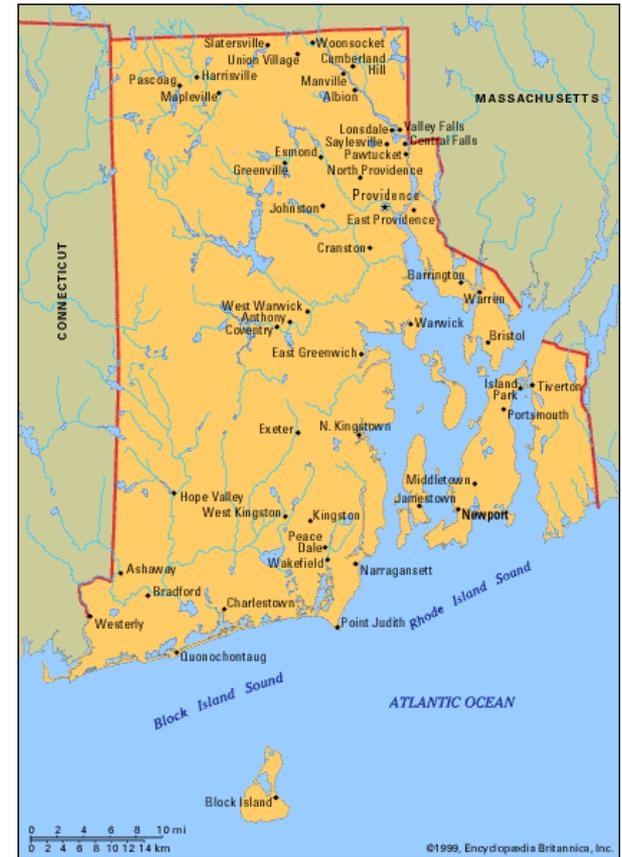
To gather sanitary shoreline surveys and sanitary water quality data in the various estuaries of The Gambia in support of developing the nation's water quality zones to protect public health through safer Gambian oyster and clam harvests, and to support development of a Gambian National Shellfish Sanitation Program (GNSSP) to boost shellfish consumer confidence and expand Gambian shellfish markets

Key Outputs

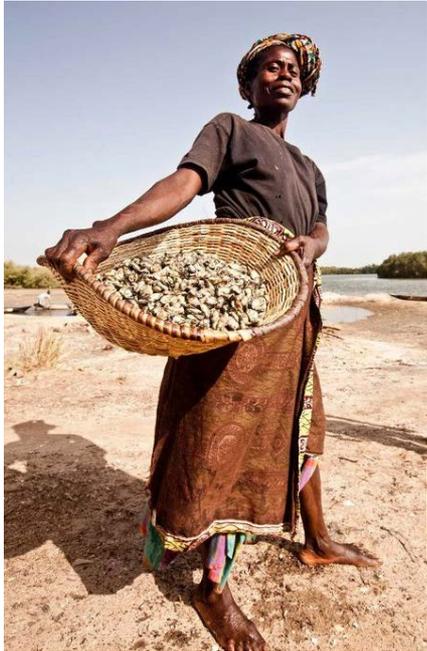
- **August 2010 – December 2013, bacterial water quality measurements have been taken from 20 sites in three different estuaries in Western Gambia: Tanbi, Kubeneh, and Allahein & analyzed by G-DWR. July 2011 – Study tour to US to observe NSSP & RI State Program**
- **May-June 2011 – Study tour to US to observe NSSP & RI State Program**
- **Since January 2012, semiannual sanitary shoreline surveys have been conducted by G-DWR and several partner agencies in shellfish growing estuaries to identify potential sources of contamination.**
- **Water quality & sanitary survey data over 3 years time has been used to assign provisional water quality classifications for the 3 estuaries.**
- **Jan 2014 – Water quality classification zones were mapped using Geographic Information System services of the G-NEA**

Gambia and Rhode Island

	<i>Rhode Island</i>	<i>Gambia</i>
<i>Area</i>	3,140 km ²	10,380 km ²
<i>% water</i>	13.9%	11.5%
<i>Population</i>	1,050,300	1,705,000
<i>Density</i>	388.0/km ²	164.2/km ²



Value of oysters USA and Gambia



- Great difference in oyster prices USA & Gambia
- Why?



Average RI & CT Oyster Prices per Standard Bushel (80 lb) by Decade

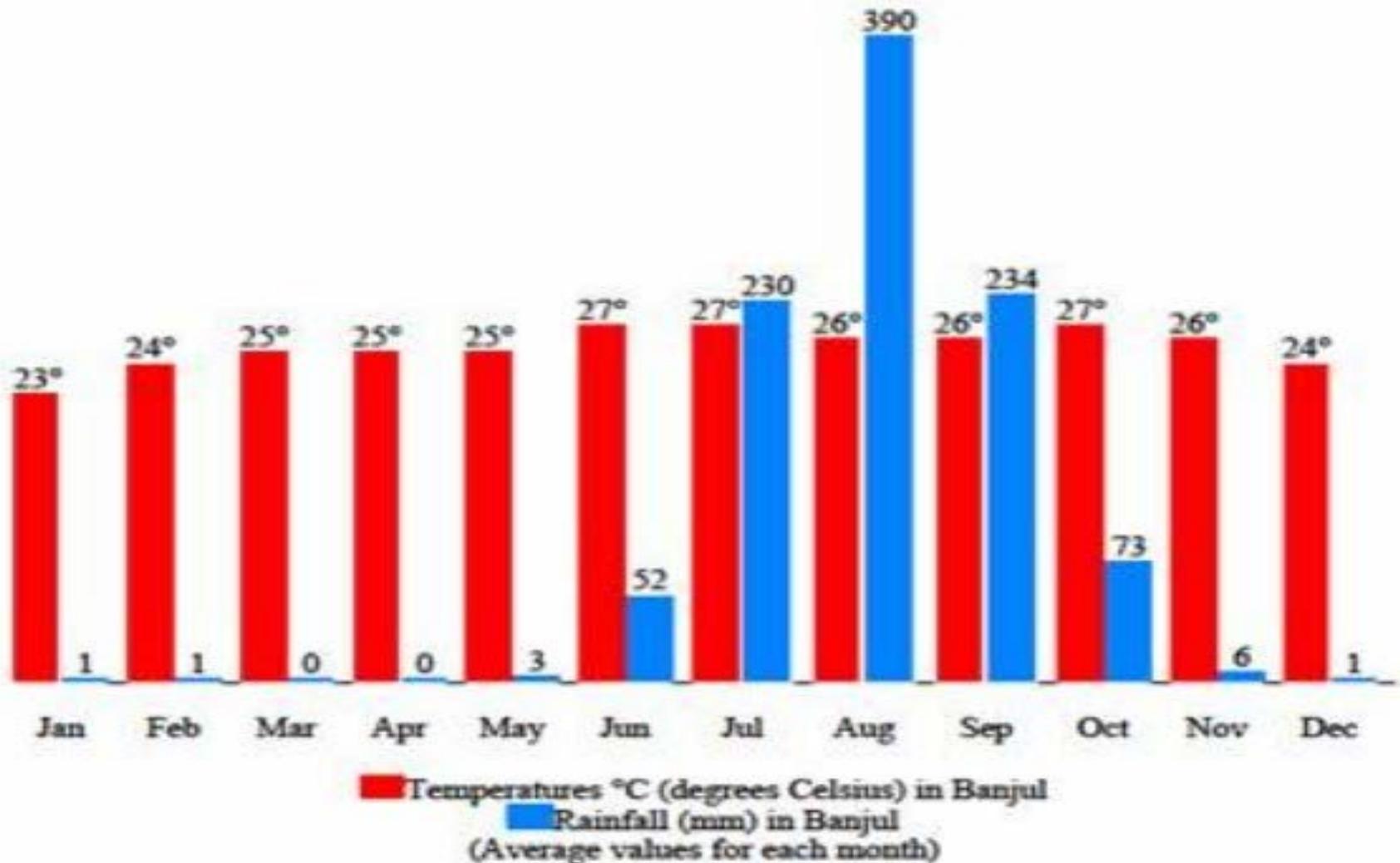
Year	Prices	
	<i>Actual US\$</i>	<i>Inflation adjusted to 2013 US\$</i>
1880	\$1.22	\$56.70
1890	0.63	20.79
1900	1.09	46.07
1910	0.65	17.01
1920	0.74	8.65
1930	1.12	15.69
1940	1.08	18.04
1950	2.41	23.39
1960	9.57	75.61
1970	14.00	84.39
1980	26.26	74.53
1990	59.60	106.65
2000	92.00	124.65
2010	115.00	123.34

Sources: MacKenzie 1996; Greg Silkes, American Mussel (pers comm); U.S. Dept. of Labor Inflation Statistics.

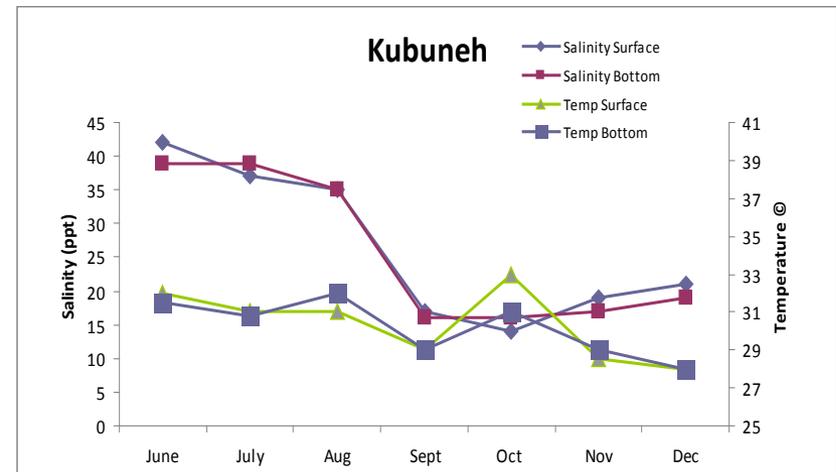
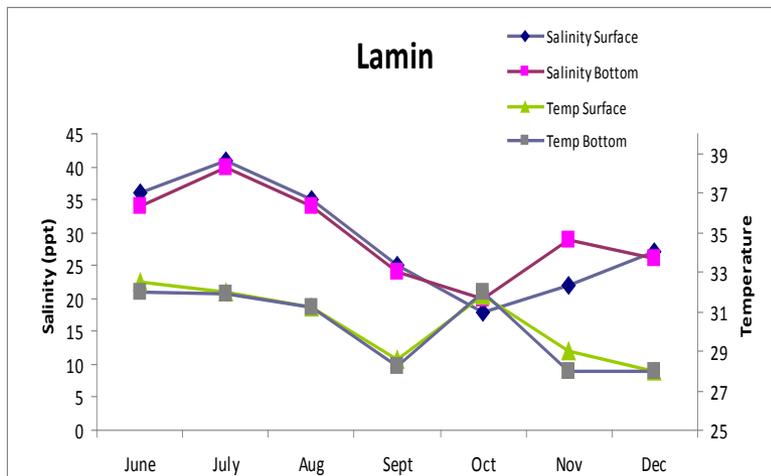
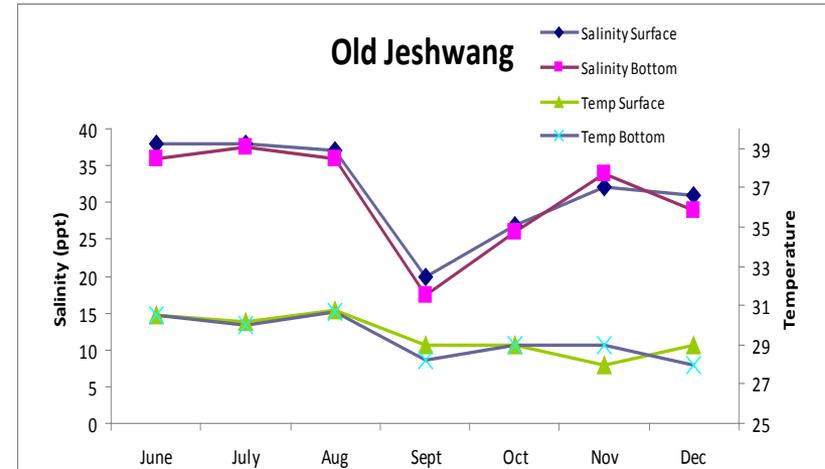
Gambian Officials Visit RI & DC in 2011 to Study NSSSP & RI Program



Climatological Data --- Banjul, Gambia

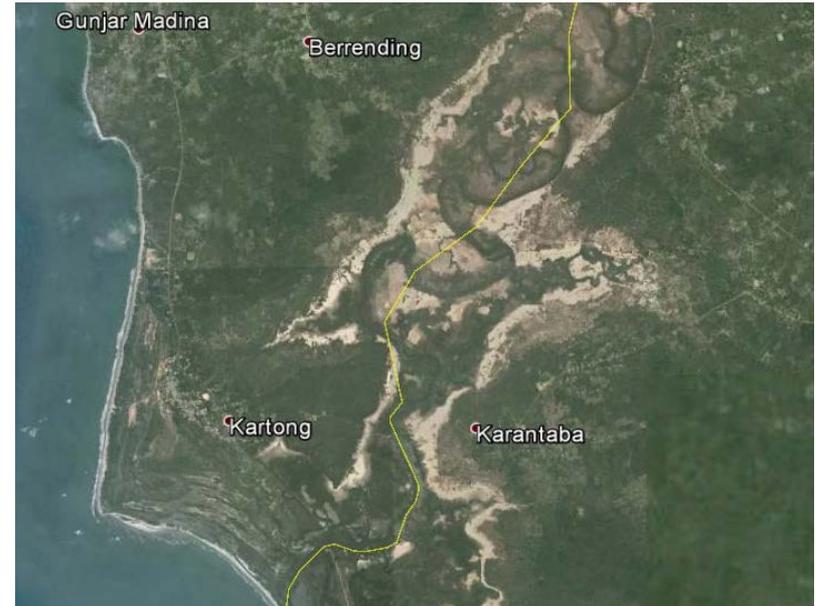


S-T Profiles at Some Sample Stations

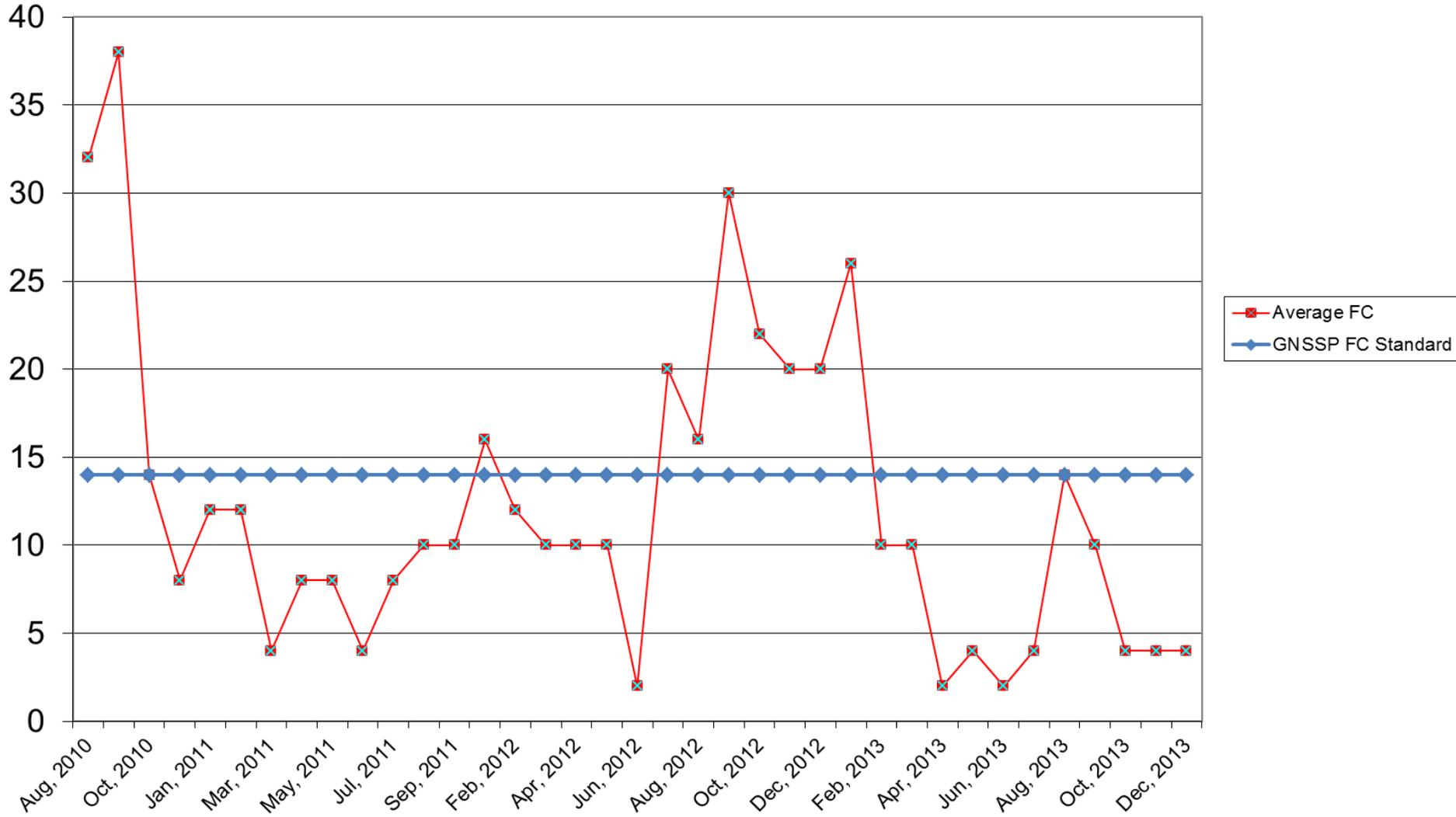


The Allahein Estuary

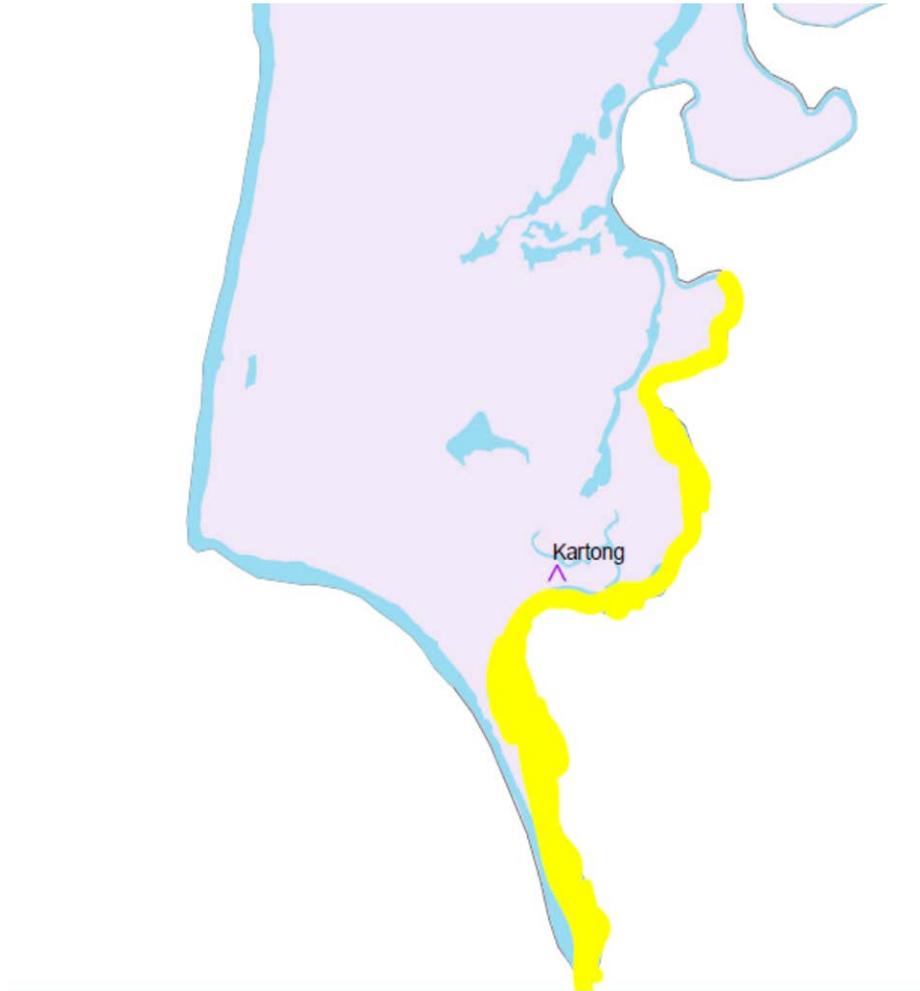
- Located on border with Southern Senegal
- Blood ark (cockle) & oyster fisheries
- Sanitary survey shows toilet outfalls to estuary



Faecal Coliform Counts MPN/100mL at Kartong

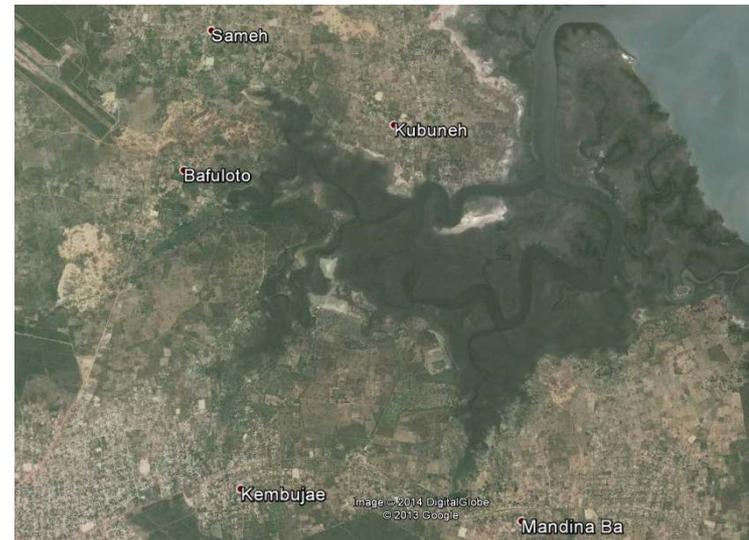


Proposed Kartong Estuary Water Quality Classifications

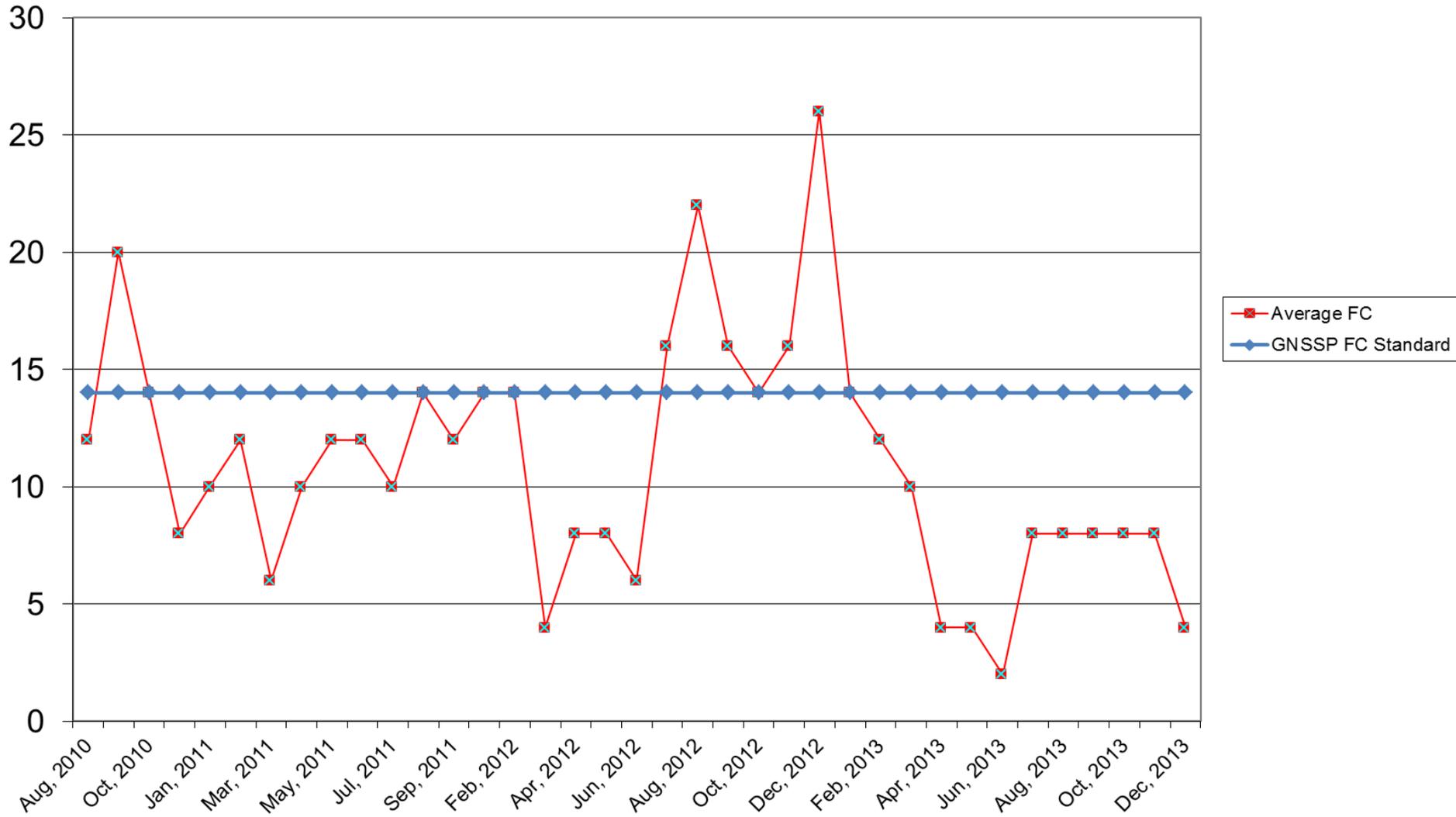


The Kubeneh Estuary

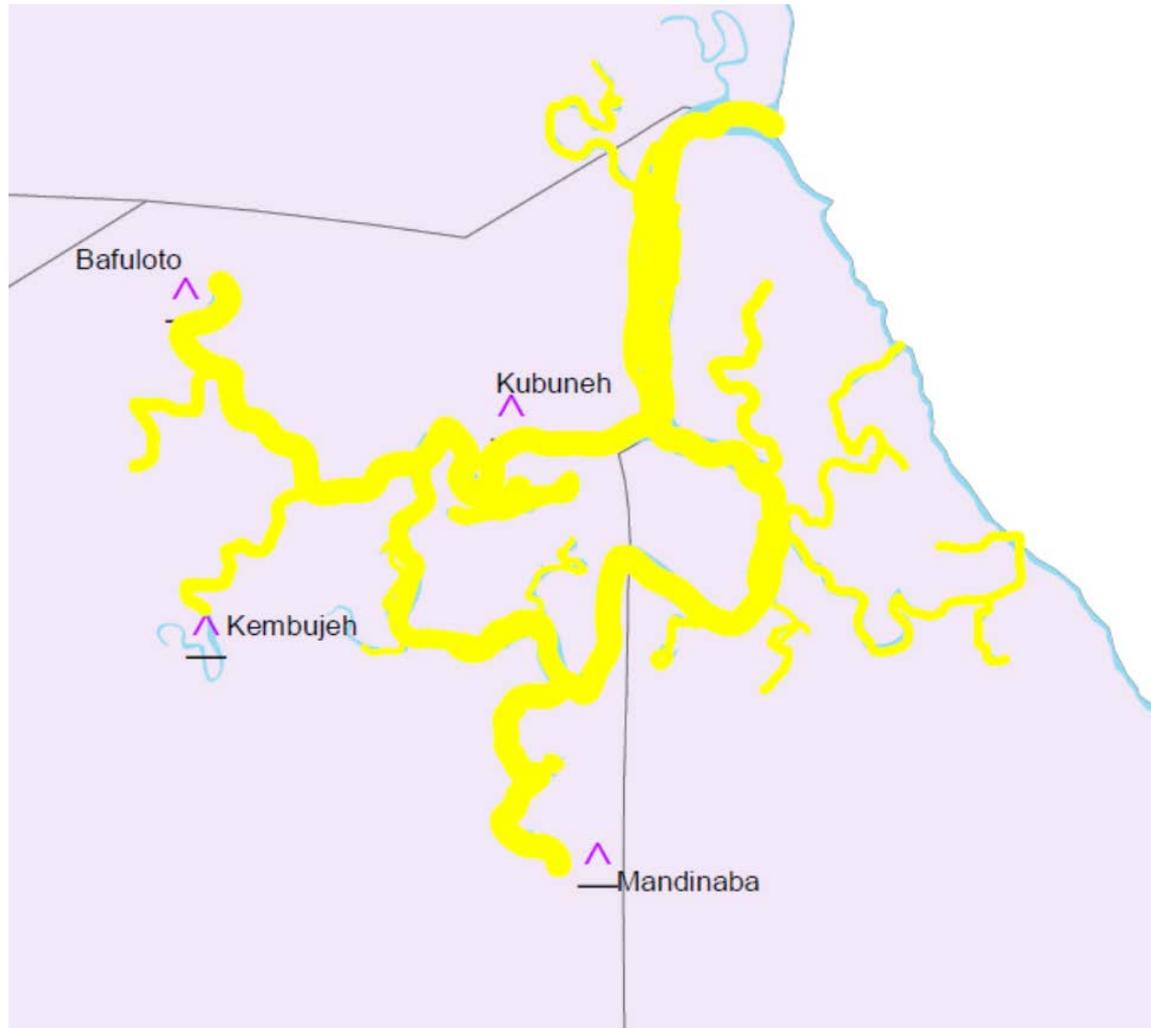
- Located near easternmost suburbs
- Blood ark (cockle) & oyster fisheries
- Four sample sites: Kubeneh, Bafuloto, Kembujeh, Mandina Ba



Faecal Coliform Counts MPN/100mL at Kubuneh

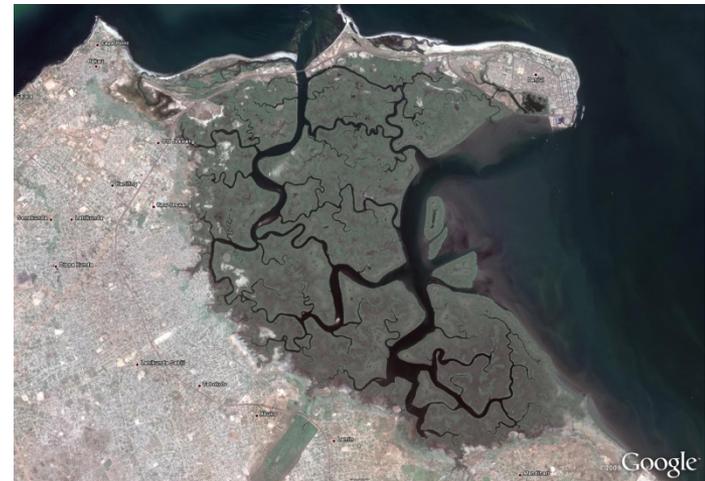


Proposed Kubeneh Estuary Water Quality Classifications

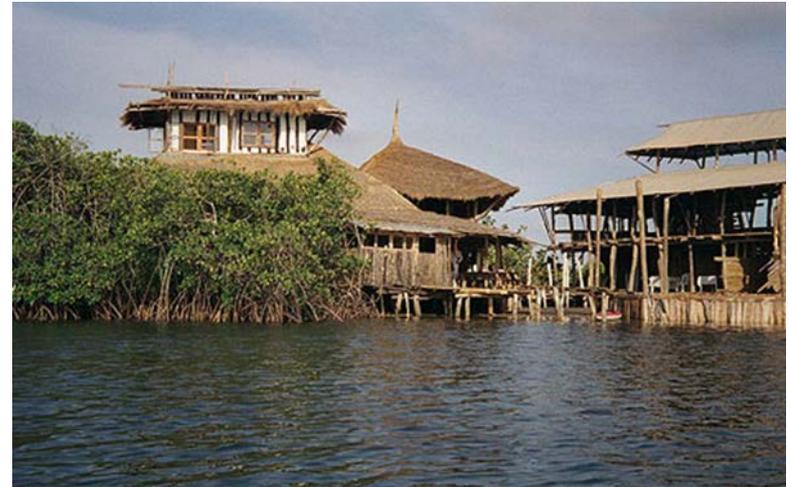
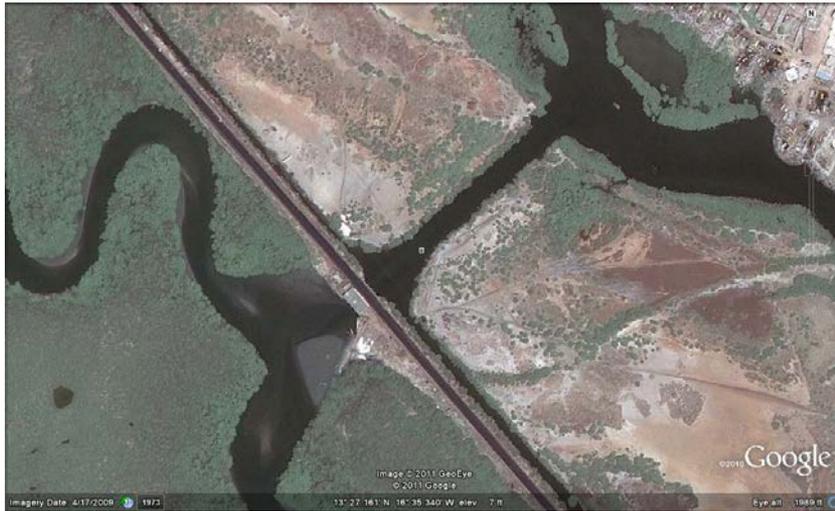


The Tanbi Wetlands Estuary

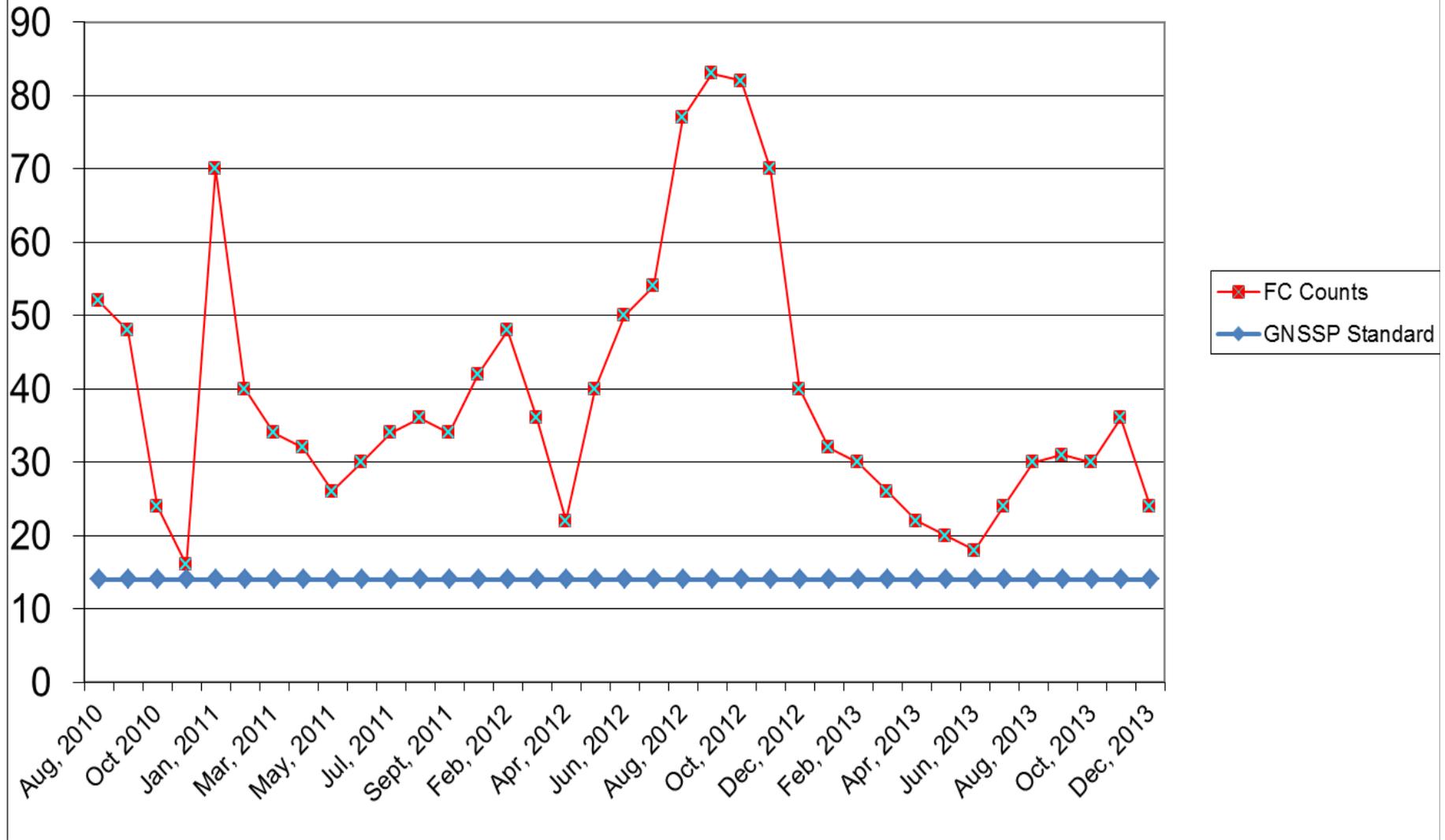
- Located in periurban metro-Banjul
- Includes area of Tanbi Wetlands National Park
- 15 water quality sampling sites; 11 around perimeter & 4 inside away from habitation
- Several problem areas located by sanitary shoreline survey



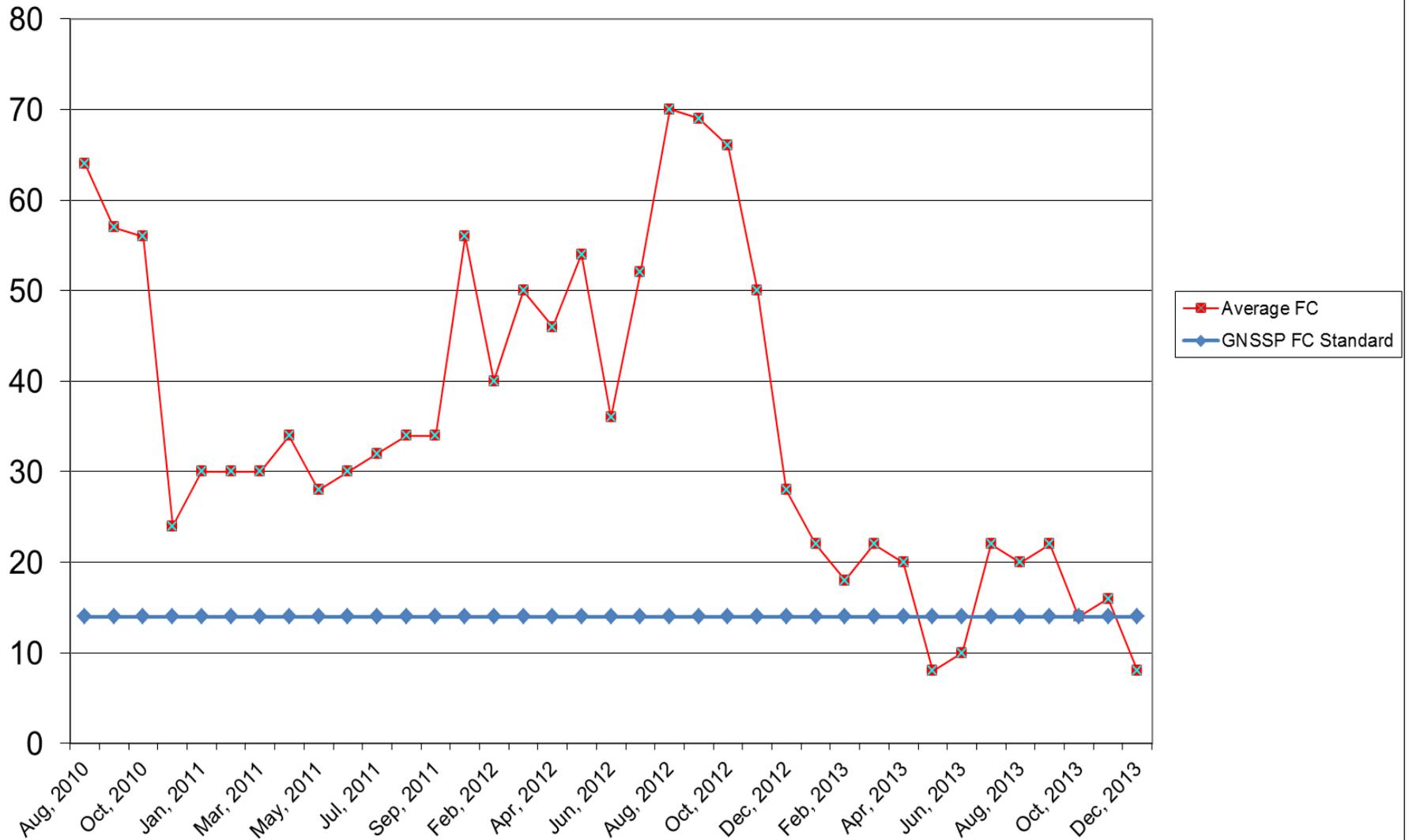
Example sanitary survey problem areas



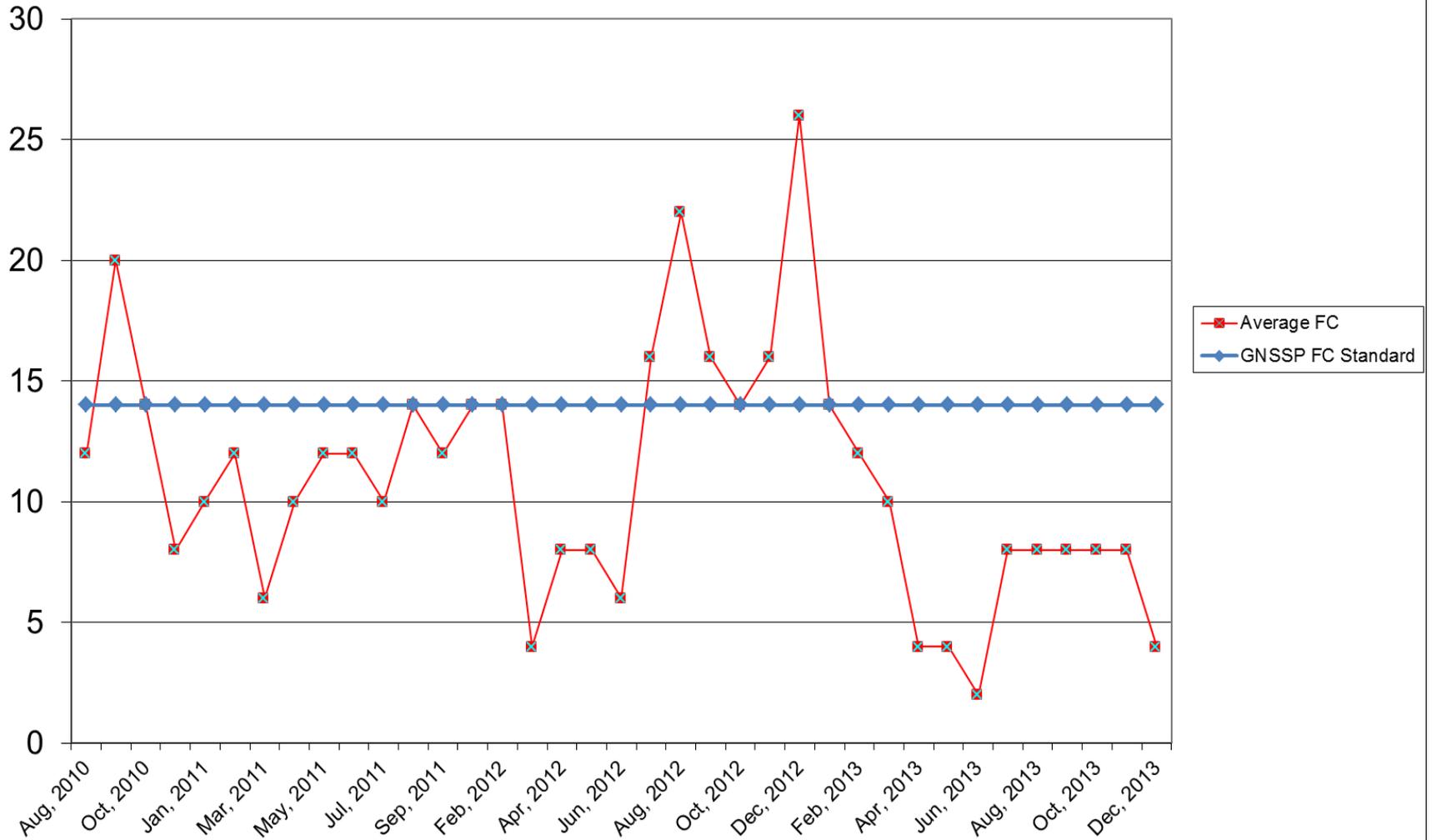
Faecal Coliform Counts MPN/100mL at Wencho



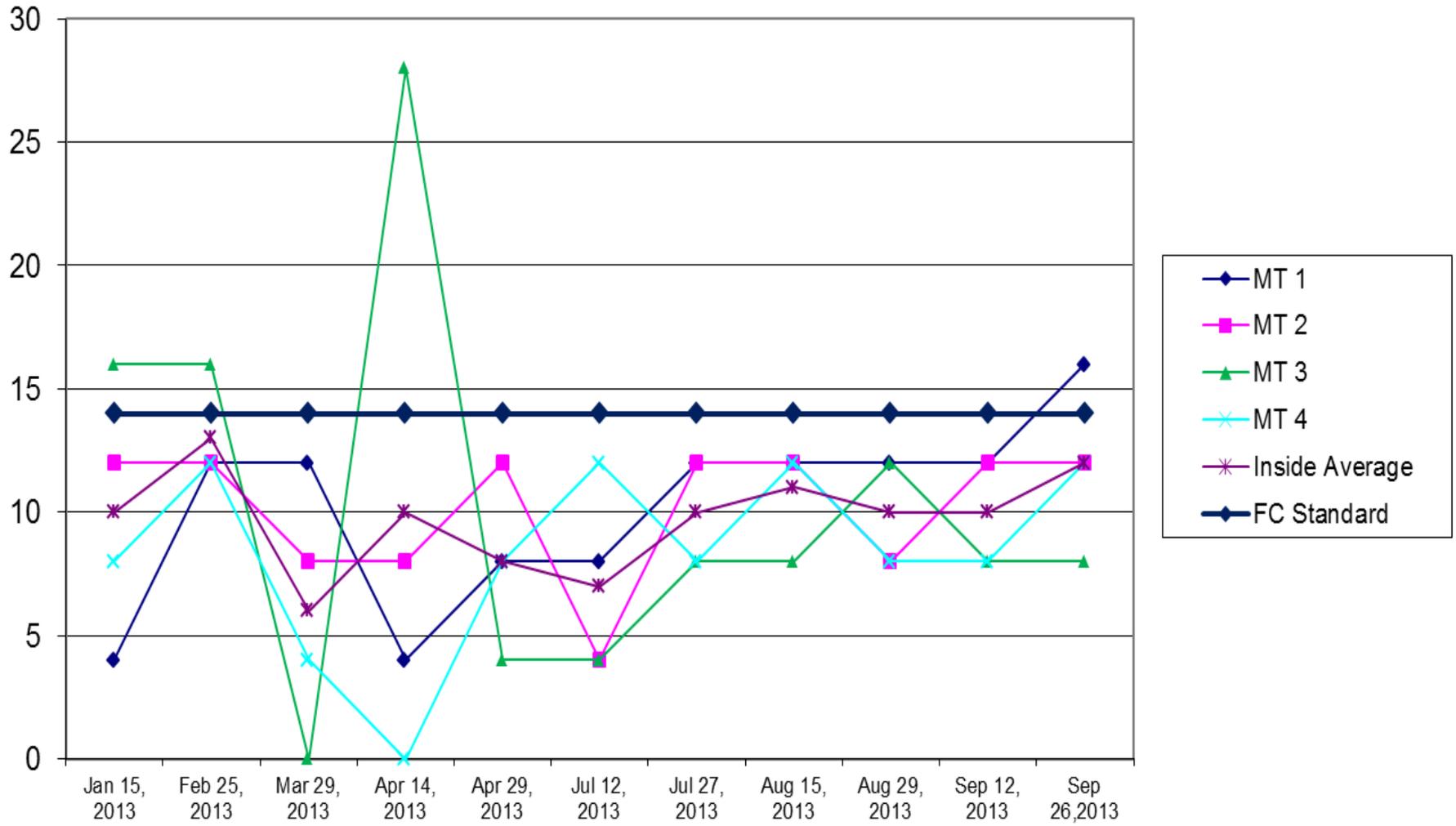
Faecal Coliform Counts MPN/100mL at Old Jeshwang



Faecal Coliform Counts MPN/100mL at Mandanari



Inside Tanbi Faecal Coliform Results



Proposed Tanbi Wetlands Water Quality Classifications



Aquaculture & Work to Codify G-NSSP



Where from Here?

- The absolute need for continuous water quality monitoring
- Need for continuously conducting the bi-annual sanitary shoreline survey
- Behavioral change relating to the application of hygiene and sanitation principles
- Application of good farming practices (GFPs) and good hygiene practices (GHPs) during post harvest and post production processes.
- The way forward can focus on an inter agency MoU for the development and implementation of the GNSSP