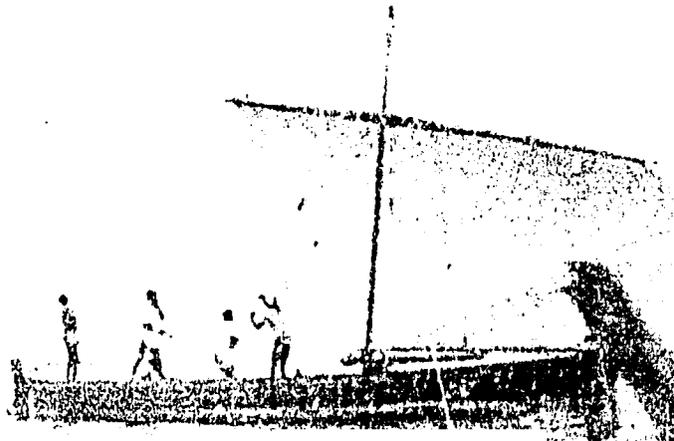


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TECHNOLOGY AND TRADITION IN WEST AFRICAN
MARITIME FISHERIES: TOMBO, SIERRA LEONE

By

Melvin K. Hendrix



ICMRD



**INTERNATIONAL CENTER FOR
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In closing, it can be suggested that the memory of a historian is rarely his own. However, the conclusions and interpretations drawn from the data are those solely of the investigator, except where otherwise noted.

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TECHNOLOGY AND TRADITION IN WEST AFRICAN MARITIME FISHERIES:

TOMBO, SIERRA LEONE

Maritime fishing in the West African littoral is an intensive and specialized occupation, and fish has historically been a regular item of exchange in the western Sudan for more than a thousand years. Although these fishing populations have a long history they have received comparatively little attention by scholars or professionals interested in development. While fishing has been acknowledged in the anthropological literature as important to the annual subsistence patterns of many African peoples, it is often assumed to be one of several strategies of subsistence exploitation, as opposed to the primary occupational subculture. As a consequence, few independent anthropological studies attempt to analyze and describe in depth the economic activities and socioeconomic relationships in maritime and other African fishing communities.¹

Fewer still are historical studies that focus on African maritime fishing activities, although the fishing industry in Africa dates back to the Predynastic Period in Egypt and to Stone Age Africa. Prototypes of the more important contemporary fishing gear were in common use in Ancient Egypt. These included fish harpoons, hooks, hand and longlines, angling, trolling, cast-nets, fish traps and baskets of various types, dip-nets, weirs, seine nets (with and without pockets), and beam trawls.² Archaeological excavations at Ishango on Lake Mobutu and at Baringo on Lake Turkana have also revealed barbed harpoons for spearing

fish and net weights showing that nets were probably used in the capture fisheries of the Great Lakes region.³ Historians of Africa have long been aware of the importance of fishermen in the establishment of sedentary communities. It is surmised that the availability of a permanent food source such as fish was a catalyst to the development of complex social groupings. Some scholars have suggested that African fishing communities between 7000 B.C. and 2000 B.C. may have been major laboratories where social patterns for sedentary living could be tested and elaborated.⁴

This paper provides an historical overview of a single West African maritime community whose subsistence is today based solely upon the production and exchange of fishery products. The primary locus of this study is Tombo, Sierra Leone; a village of about 8,000 inhabitants in 1982, situated near the southernmost extension of the Freetown Peninsula, on the north shores of Yawri Bay. More specifically, this paper examines the socioeconomic organization and technological changes that have over time made Tombo an industrial center for the production and exchange of fishery products in Sierra Leone. In order to better understand the evolutionary process of the Tombo fishery, it is necessary that we first briefly review precolonial fishing activities in the West Atlantic coastal region, historically referred to as the Upper Guinea Coast. This region extends from Cape Verde in the north to Cape Palmas to the south.

WEST ATLANTIC PEASANT FISHERIES: AN HISTORICAL PERSPECTIVE

This discussion is based largely upon first-hand published accounts provided by contemporary European observers who personally visited the

region from the seventeenth to the nineteenth centuries. Although they had little immediate interest in fish, fishing, or food production, these reports make it quite clear that fish was an important contribution to local diet, and that fishermen were important in advancing trade between Europe and West Africa. Furthermore, the early Portuguese accounts suggest that fish was an inclusive item of trade between Portugal and Guinea from as early as 1448. Europeans often encouraged African fishing activities because of this trade. Employees of trading companies who settled in the West Atlantic consumed fish in their diet on a regular basis, and in order to maintain a regular, cheap supply, company officials commonly imposed tolls on African fishermen, especially near the trading stations. The Portuguese traditionally exacted such customs from Africans in the region, beginning with the Azenegue fishermen of Arguin by 1506. For the privilege of fishing in their jurisdiction, it was reported that the Portuguese authorities taxed the Azenegues at one-fifth of their catch.⁵ And on the Gold Coast the Portuguese assigned three or four men at Samara to acquire food supplies and collect tolls in fish for their operations at Axem and Mina.⁶

The late Walter Rodney was one of the first scholars to recognize the role of the maritime fishing communities in the Upper Guinea Coast in furthering European colonial expansion. In his major work on this region, Rodney pointed out that from the fifteenth century onwards maritime societies were the principal font of acculturation and integration of the region into the international capitalist economy. It was fishermen in their dug-out canoes who first met and traded with

European vessels, as well as acted as interpreters for and commercial liaisons with the various coastal communities.⁷

As commercial agents for European and American ships, African fishermen were sometimes able to improve their own material welfare and acquire and introduce new types of fishing hooks, canvas sail, and twine. Fishermen in the West Atlantic were industrious workers, getting up before sunrise, and working past sunset. The trading of fish to foreign vessels was 'employment' for many fishermen and women, as fish was an important victual for the transatlantic voyages.⁸

Nonetheless, fish could not rival the major articles of trade between Europeans and Africans in the Upper Guinea Coast. A short list of commodities commonly exchanged would include slaves, gold, ivory, timber, beeswax, pepper (malagueta), shea butter, hides and skins, indigo, civet, ambergris, palm-oil, rice, cattle, palm-nuts, and citrus fruits of all varieties. Fishery products were primarily consumed within local villages and purchased in local markets by the African masses and European patriates living in the area. According to several reports, fish was plentiful most of the year, as the many inland rivers running to the sea, coastal estuaries and mangrove swamps and forests, together with an extensive sea shelf, gave the Upper Guinea Coast some of the best fishing grounds found anywhere.

As early as 1500 the diet of the peoples of the Upper Guinea Coast was understood, if not always appreciated, by Europeans who visited the region. Valentim Fernandes recorded from first-hand reports in Lisbon between the years 1506-1510 that the diet of peoples in the Sierra Leone River area consisted of rice, millet, yams, groundnuts, haricots, beef, goat, wild game, and both broiled and roasted fish and shellfish.⁹ Father

Jean Baptiste Labat remarked about the abundance of fish available for local consumption and the demand for it during his visit to the same area in 1721, reporting that: "The river is full of fish, and the people eat more of it than any other meat, although they are not lacking in other animals, which they can buy at a good price...."¹⁰

One of the first journalists to relate fishery products in the precolonial African diet to health and nutrition was Lt. John Matthews, R.N., a trader who was resident in Sierra Leone in the years 1785-1787. Matthews commented that:

It is a general remark all along the coast of Africa, that those nations bordering upon the sea, or inhabiting islands, are a much stouter, better made, a braver, and more active people than those who reside in the interior parts of the country. This, perhaps, may be in some measure accounted for by the difference of food, those upon the sea-coast living a good deal upon fish, and breathing a more salubrious air.¹¹

Precolonial maritime fishing methods were varied, evolving over several centuries. The most prevalent and traditional techniques were the hook-and-line, the bow and arrow, and spearing, trapping and poisoning. The first hooks were usually made from the bones of certain fish, which were sharpened at one end; or from the ivories of elephants and hippotamuses. None of these hooks were barbed, however. Spearing, as well as the use of the bow and arrow, were practiced from either the shore, in shallow water, or from a canoe. Certain West Atlantic peoples, like the Mandingoes and Susus, specialized in the use of the bow and arrow, shooting fish with arrows as they approached the shore.¹² The spear, or harpoon, varied in shape and length, but most often it had a permanently fixed one-barbed head, attached to a long shaft of about nine feet, to which a strong rope with some type of

float was added. The heads of spears and arrows could also contain some type of poison or toxin to assist in the capture of large fish.¹³

The use of some type of netting for the capture of fish was universally employed throughout the Upper Guinea Coast. The nets were often constructed from cord derived from oil-palm leaves. For example, Fernandes reported fishermen near the Senegal River using a type of trap-net manufactured from cord derived from such leaves, which locally was called tamissa. He described this net as being similar in design to a large handbag used by women

which opens and closes and in the middle they put two sticks in the shape of a cross on which they place their bait, and in the center a large stone for weight. The net is about twelve feet wide, more or less. And then they throw the open net at a distance of about 80 fathoms more or less to the end of a tamissa rope. And when they sense that the fish are eating the bait, they pull on the rope and the net closes with the fish in it. They then pull it up and in this way they catch a great many fish.¹⁴

Netting could also be made from the leaves of the plantain and pineapple, as well as certain grasses, akin to hemp and flax.¹⁵

While European net construction materials were not in widespread use prior to the late nineteenth century, European net designs and mesh sizes played an important role in the development of West Atlantic fisheries, as reflected in their adaptation in the region from as early as the fifteenth century. Among the most common types of netting identified between the sixteenth and nineteenth centuries as being used by fishermen in the Upper Guinea Coast are the following:¹⁶

- a. Cast-nets - believed to have been introduced by the Portuguese by the 15th century, are wide, flexible nets used from canoes or in shallow water. They are circular in shape and weighted at the edges, with a haul line attached at the center that creates a cone when the net is dragged in.

- b. Draw-nets - small wall nets used only in shallow water, and operated by two men who drag it toward the shore by manipulating two strong poles fastened at each end.
- c. Set-nets - large nets up to hundreds of yards long and quite deep. These nets are normally anchored vertically in the water to permit the fish to become entangled in it. They are particularly effective against schools of fish found in a bay or, literally, up a creek. The stakes for the set-nets were sometimes permanently anchored in key inlets so that the fishermen could quickly respond when a school of fish had been sighted. Large predatory fish, like barracouta, shark, and skate, were often captured in these operations.
- d. Drift-nets - so-called because the net is usually dropped from a canoe and permitted to drift with the current, is similar in construction to the set-net.
- e. Seine-nets - usually larger than set-nets are very long and wide. This net is dropped from a boat paddled by several fishermen in a semicircle course away from and back towards the beach. The net is later pulled in by two groups of men, one on each side, until the funnel-shaped net is completely drawn in upon the beach. For this reason, this net is often referred to as the 'beach-seine.' This net design was introduced by European sailors and was in widespread use as early as the mid-eighteenth century, having been adapted to local materials.

The subsistence unit in precolonial Africa was the extended family, with the division of labor based upon sex. In contrast to family farming units in the Upper Guinea Coast, however, where women were the primary producers, maritime fish production was largely a male enterprise. In maritime fishing communities, women were responsible for processing the fish caught by their husbands or brothers. The most common methods of preservation were salting, frying, sun-drying, hot smoking and grilling. After processing, women were usually responsible for the sale and exchange of fishery products in the local markets. On other production levels, however, women were active in certain types of inshore and river fisheries. For example, they often harvested shellfish, particularly oysters, which were extremely abundant in the mangroves; they set fish traps and dams in and adjacent to creeks and

rivers; and used scoop-nets to capture fish in the tide pools, as well as in the rivers, creeks, and many estuaries. Women also used a number of toxins to capture fish.

The state-of-the-art in fishing vessel technology was the dug-out canoe. The canoe was the primary means of transport throughout the West Atlantic, and ranged from tiny one-man types used for local tasks to relatively large, sophisticated boats, which could hold upwards of fifty persons on the open sea.¹⁷ The light dug-outs were made for easy portaging in the riverine areas, through the mangrove forests, and between the rivers. The heavy, giant canoes were constructed for purposes of transporting goods as well as people along the coast. One eighteenth century visitor reported that some of these dug-out canoes were "capable of carrying eight or ten tons."¹⁸ Such craft were normally flat-bottomed and hewn from gigantic logs. John Carnes, an American trader from Boston, reported sighting these vessels moving up and down the coast from Sierra Leone to Elmina in the mid-nineteenth century.¹⁹ Giant canoes were also used for warfare. The Bisagos built war canoes, referred to by the Portuguese as almadias, which Rodney described as being constructed from giant silk-cotton trees, and measuring about 70-feet in length. Each of these boats could carry upwards of "twenty-four men and their weapons, and had room for prisoners and cattle when returning from their expeditions on the mainland."²⁰

Because of the importance of the canoe in daily life, boat-builders belonged to a specialized occupational sub-group in the Upper Guinea Coast, and their high status can be assessed from the Djola (Biafada) proverb quoted by Rodney: "the blood of kings and the tears of a canoe-

maker are sacred things which must not touch the ground."²¹ On the other hand, the status of fishermen varied throughout the region. Among the Wolof, for example, fishermen (cubalo) were one of five endogamous occupational groups. While in Futa, where fishing was the major industry, fishermen were considered free men (riimbe).²² Futa fishermen were organized in corporate fishing villages under a chief or headman, whose primary socioeconomic responsibilities included the making of "medicine" to insure the safety and success of his constituents. For these services, chiefs received a share of the daily catch which was then consumed or redistributed in some form or another.²³ For the most part, however, fishermen in the Upper Guinea Coast and their families constituted peasant communities, whose overall occupational status in the region was less than that of cultivators. Nonetheless, there are a number of similarities between them.

The peasant mode of production has been distinguished in the following manner: that the producers have direct access to the means of production; that the family is the basic labor unit, and that both production and commerce is organized and oriented within this context; that the work unit operates according to the law of subsistence rather than the law of value; and that the family is integrated into a larger social economy in which their surplus production is regularly appropriated in one form or another.²⁴

The characterization of fishermen as peasants has proved problematic when placed within the conventional parameters pioneered by the Marxist analysis. One of the essential concerns when applying this framework to maritime fisheries is the question of resource ownership since the ocean domain is not as easily alienable as is that of land. Among

fishermen there is the absence of resource ownership (defined here as the ocean with fish in it) beyond simple access and the techniques necessary to produce from it.²⁵ Thus, the control of the means of production through rent or title is not possible. On the other hand, both fishing rights and land rights in Africa are based upon the right to access or common property usufruct and, therefore, is not a paramount socioeconomic issue in the peasant calculus in Africa.

A second problem is the fact that fishing is the exploitation of a natural resource, an extractive industry of a mobile resource, in which the embodiment of labor is not possible. The resource becomes, as Marx has suggested, the subject of labor and not an instrument of labor. However, both fishing and agriculture in Africa are resource-based. In a recent study of rural cultivators in Tanzania, Hyden argues that:

The system of shifting cultivation and bush fallowing evolved by African peasants represent striking examples of resource-based agriculture. Such systems give proof of an effective adaptation to the economic and physical environment, including the abundance of unused land. Except for the cost of clearing the bush or forest, land is free.²⁶

Similarly, it would be wrong to assume that the precolonial fishing economy in the Upper Guinea Coast was static and represented nothing more than primitive food-getting from a common property resource. The methods of fishing in the region were skillful and complex adaptations to the prevailing conditions necessary for resolving the problems of social reproduction.²⁷ Moreover, Faris emphasizes that in the case of a sea fishery the instruments of labor can be regarded "as forces of production -- that is, those material objects and situations in which labor is embodied (tools, techniques, skills)".²⁸ In this sense, we find that even though the resource is the subject of labor in fishing,

the social relations of production are similar to those of peasant cultivators. Within this context, let us now examine more specifically the historical development of the Tombo fishery in Sierra Leone.

TOMBO VILLAGE: HISTORICAL BACKGROUND

The history of the southern area of the Sierra Leone Peninsula is not well represented in published studies. But from what can be discerned from the several oral histories provided by village elders, and a spotty historical record, Tombo was founded and settled sometime around the turn of the nineteenth century by Sherbro immigrants. Traditions suggest that they migrated to the Sierra Leone Peninsula to escape internecine conflict resulting from a "black man's war" in their home area between Moyamba and the Jong River in the Sherbro Hinterland. The specific date and nature of this war is not clear. But the Sherbro chieftains were often at war with one another, and customarily recruited Mende warriors to fight for them. These mercenaries oftentimes later contributed to much instability in the Sherbro hinterland in the eighteenth and nineteenth centuries. J.C.E. Parkes, a Creole civil servant, commented that

This practice of "buying war," as it is called, is really the bane of the Sherbros, inasmuch as were it not for these condottieri whom they introduce into the country by paying a trifle for their services which is afterwards rewarded by plunder....²⁹

At the time, the Sherbro villages in the Peninsula were under the Bumpé Chiefdom administration of Chief Stephen Caulker (1797-1810). The Caulkers were an Afro-European family who dominated trade and politics along the coast of Yawri Bay south to Sherbro Island for about a century.³⁰ The attraction for settling on the north shores of Yawri

Bay was not only the more stable political environment, but also the eastern shores of the bay are muddy and thick with mangroves. The north shore offered some protection from the slave trade, a sandy, protected beach and harbor, and ample fishing grounds. The Sherbro men preferred hunting and fishing to farming, which they considered menial, slave and women's work, "below their dignity".³¹ Nonetheless, the original settlers were involved in both subsistence farming and fishing. For sea fishing, they generally used hook-and-line outfitted from Sherbro canoes (rough dug-outs), or cast-nets.³²

From about 1812 to 1840, the village established itself on the present site of what is now referred to as Sherbro Town. Sometime between 1812 and 1819, some of Tombo's fishermen began to adopt Kru-canoes and cast-nets made with hemp from the oil-palm. This technology was introduced by Liberated Africans (Akus, or Yorubas) brought from Freetown into the new settlements of Kent and Waterloo, both established in 1819.³³ By the 1840's Tombo itself had been selected as one of the sites for the settlement of "recaptives." The fact that the village is only about two miles from Kent encouraged some Liberated Africans to move on to Tombo in order to escape the direct administration of British colonial authority and be closer to an abundant food supply.

The settlement of Liberated Africans in Tombo in 1845 also meant the coming of Christianity under the Anglican-affiliated Church Missionary Society mission at Kent. In that same year, Reverend Frederick Bultmann baptised the first Tombo residents, three adults and three children. The oral traditions suggest that although C.M.S. missionaries from Kent had previously made regular visits to Tombo, Liberated Africans had not settled there prior to this event. With the

conversions and the settlement of the Liberated Africans, however, a small church constructed of boards, bamboo, and a thatched roof was erected. This date also marks the beginning of formal colonial administration of the village, with the Liberated Africans now acting as administrative liaisons between Tombo and colonial officials at Kent.³⁴

Tombo's geographical position made it a likely landing site on the north Yawri Bay coast by sea traffic from the south at Shenge and the Plantain Islands, as well as by vessels from the north around the Banana Islands near Cape Shilling. Upper Yawri Bay was said to be an active center for an illicit trade in slaves, timber, and palm-oil promoted by the Caulkers. In 1878, one colonial official charged that:

Into the Ribbie River the goods have been carried from the Metacong... I submit that the factory in the River has for many years been a trading depot, from which goods have been carried into the Sierra Leone peninsula, evading the Custom laws there in force.³⁵

Just how much Tombo may have been involved in this business is not known, but the relations between Ribi and Tombo could not have been remote. Both villages were involved in subsistence fishing, were in close proximity to one another, and both owed allegiance to the Bumpe Chiefdom until after 1820, when Thomas Caulker (1810-1832) turned the Banana Islands and adjacent territories over to the British. Furthermore, under Charles Caulker (1832-1842), the family opened up a thriving timber trade on the shores of Yawri Bay after Thomas Caulker's death.³⁶ Moreover, unless the conditions at Ribi were much better than now, the beach there was extremely muddy, thus making landings rather hazardous. Le Maire's account in the early seventeenth century suggests that the eastern shores of the Bay were in fact quite swampy

and he was unable to locate any people on the coast during his reconnaissance.³⁷ Tombo would have provided a far better landing site.

By 1891, Tombo had grown dramatically. The first major colonial census for the Peninsula in that year reported that Tombo was composed of 438 inhabitants and 103 houses in a village by then divided into three sections - Sherbro Town, Kassie, and Krio Town. This made Tombo the second largest village in what was then called the Western District of the Colony.³⁸ Even with this growth, Tombo was never to achieve the status of an administrative center, overshadowed by Kent, Russell, and Waterloo, each with a significant Liberated African settlement for whom the colonial administration assumed primary responsibility.

Major changes in village social relations began to occur in Tombo following World War I. The prolific fishing grounds, good beach, and an increased standard of living on the Peninsula led to an in-migration of several indigenous ethnic groups from the Sierra Leone Protectorate. The most important of these migrations was that of the Temne in the 1920's. Temne fishermen initially migrated with their families in small fishing bands. According to the local history, the first Temne came by sea in dug-out canoes, east from the interior via the Fogbo river which enters Yawri Bay near Ribbi village. The Temne had a major impact on the language and customs of the village, bringing with them the Islamic faith and a mutually inter-intelligible language with the Sherbro founders.³⁹

Another major impact on village social relations was initiated in the 1890's when the British colonial authorities enacted a "hut-tax" on the inhabitants of the Colony and the Protectorate. This action was designed to force the Africans to become more involved in the capitalist

economy and to provide revenues for the administration of the colonial apparatus. In order to acquire the cash tax (about 25 cents), Tombo residents had to trade their fishery products in Kent, Waterloo, or Freetown. Local traditions record that the wives of the fishermen who were responsible for trade would periodically travel to Waterloo or Freetown for the expressed purposes of trading for money. This ultimately led to more formalized arrangements between Tombo women, who acted as fish wholesalers, and Waterloo market women who assumed the role of fish retailers.³⁹

The trading practices thereby reinforced the traditional sexual division of labor within the Tombo fisheries. The harvesting of fish was traditionally done by males while women were responsible for completing the process by "cooking." As MacCormack has recently noted:

By cultural definition, only women, not men, cook, thus insuring women's domain over a wide range of productive activities and marketable goods. Indeed they dominate the local markets....⁴⁰

In fish processing, as in all other cooking, women are the vital functionaries. While they must wait for men to go to sea to catch the fish, and therefore initiate the labor process, men in their turn are dependent upon women to carry out supplementary female tasks, thus creating a system of interdependence. In fact, women in many maritime fishing communities play a larger economic role in the capitalist sector of the economic system. They not only process the fish, but also negotiate its sale in the local and regional markets, usually with other women who may be either wholesalers or retailers. In Tombo this is promoted by the fact that women must pay cash to the fishermen at the beach, even if the sellers are husbands. In order for the women to recover their expenses, they must be able to compete the processing

with its inherent risks of spoilage and improper "cooking." Later, they must be able to exchange fish in the market at a profit. Thus, when one looks at the total production system, from raw materials to marketable products, women in Tombo, as in many other fishing communities assume a major economic responsibility for the reproduction of their households.⁴¹

THE TOMBO FISHERY: SOCIOECONOMIC AND TECHNOLOGICAL DEVELOPMENT

The primary attraction offered by Tombo to the various migrants to settle there has been the presence of a viable subsistence food economy other than farming. Throughout its existence, however, the fishery at Tombo has been underdeveloped. Several factors have contributed to this situation. Among these are inadequate production and processing technologies, as well as the lack of government supports and subsidies under colonial and post-colonial administrations.

By the mid-nineteenth century the fishing industry in the Peninsula was a key area of employment and production. Unfortunately, economic and trade data for fisheries are generally sparse before the twentieth century. On the other hand, records that are available suggest that fishing could be profitable, as the demand for fish was great. For example, colonial records indicate that Liberated Africans were actively involved in the industry from their earliest settlement and were responsible for the introduction of new methods and gear. By 1850, it was estimated that 120 boats and canoes, with crews of about 850 men, were fishing the coastal waters around the Colony.⁴² The preferred production methods were canoes with cast-nets or beach seining. Sails were also now in widespread use expanding the range of maritime exploitation.

The largest market was Freetown and it attracted a great percentage of total production. Melville noted that the local market in Freetown was

well supplied with fish - mackerel (which though larger and coarser than that caught on the English coast, is yet very good); soles, mullet, snapper, ... and barra-couta, a grand looking and richly tasted fish, those I have seen being larger than most salmon.⁴³

The villages of Aberdeen, Murraytown, York, and Kent were acknowledged to be the main fisheries supplying the dried fish for the 'chop' of fufu and rice eaten in Freetown.⁴⁴ Given the intimate social relationships between Kent and Tombo, we can surmise that Tombo fishery products were also likely to have reached Freetown via Kent by boat during this period. The other major market for Western District fishery products was the Sierra Leone-Guinea commercial system where smoked and salted fish became important commodities in the colonial up-country trade.⁴⁵ One source estimated that an owner of a fishing boat could probably make a monthly profit of between ten and fifteen pounds sterling in the sale of fish.⁴⁶

One of the best descriptions of fishing practices, gear, and equipment in use by maritime fishermen in Sierra Leone from the late eighteenth century onwards is provided by Dr. Thomas Winterbottom, who visited Sierra Leone and vicinity (including Yawri Bay, which he calls the Bay of Sherbro) between the years 1796-1798. In his 1803 publication, he recorded fishing activities as follows:

They have various methods of catching fish; sometimes they go out to sea in their canoes, and fish with a hook and line, which is fastened to the thumb, while they paddle the canoe. Sometimes two men wade up to their breasts in the sea, having a net about twenty or thirty feet in length, and sufficiently broad, which

is stretched at both ends by poles; it is then let down, and sinks to the bottom by weights suspended to it. The men then walk very gradually and gently towards the shore forming a kind of semi-circle. This is a very dangerous mode, as the people are sometimes bitten by sharks.⁴⁷

Winterbottom also observed several other fishing methods among the fishermen and women of the Colony, including the trapping of fish by

shutting up the mouth of a creek, which is done by letting fall, at high water, a strong mat made for the purpose, which permits only the small-fry to escape.⁴⁸

Stunning the fish through the use of toxic plants was common practice of Bullom and Temne women. Winterbottom recorded that:

A plant called by the Bulloms sabbee and by the Timmanees makoo ma-kon; is also frequently used to poison the fish, or rather to intoxicate them, and cause them to swim on the surface of the water.⁴⁹

Women in the Sierra Leone peninsula had their own designated fishing gear. One of these was a scoop-net for use by women only called tumo in Sherbro and mbembe in Mende and Temne. It measured about eleven feet long and was circular in shape, for use primarily in shallow water. The net was worked by two women, one on either side of the wide opening.⁵⁰ Beyond this, women were at other times resourceful in adapting natural materials for the construction of fish traps. Winterbottom described one such practice:

The women have an ingenious mode of catching a species of fish somewhat resembling the Miller's thumb (cottus gobio) found in England. At low water they go into some creek, and roll a great number of large leaves into the form of funnels, which they stick in the mud, with the mouth upwards; the fish which are continually leaping up to a small height, hence called jumping fish, fall into these leafy traps, and are caught.⁵¹

Until the latter half of the nineteenth century, most African fishermen made their own gear and tackle from local materials.

Winterbottom observed the manufacture of nets and fishing line in the Colony:

They have various substitutes for hemp and flax, of which they make fishing lines and nets equal in strength and durability to those of Europeans. For this purpose, the Bulloms and Timmanees use the green leaves of the young palm tree; the outer skin of these is peeled off and thrown away, the pulp is then separated from fibres by rubbing between the fingers until they remain perfectly white after which they are dried in the sun.⁵²

This gear and the methods used to harvest fish was capable of capturing a large number of different fish species. Between 1607 and 1929, Finch, Atkins, Winterbottom, and Hornell, identified among them fifty species of fish captured by peasant fishermen in the Upper Guinea Coast (See Appendix). A Temne-English dictionary published in 1916 lists an equal number of Temne words for types of fish commonly captured around the Sierra Leone peninsula.⁵³ Among the most important commercial species listed by James Hornell, a British fisheries officer, was the bonga (Ethmalosa fimbriata), who described it thusly:

The bonga is essentially the food of the poor and of the inland (Protectorate) natives, people of low purchasing power. Very little other fish goes inland in Sierra Leone except bonga.⁵⁴

The bonga fishery functioned in Tombo, as elsewhere in the Colony and Protectorate, chiefly by means of cast-nets worked from dug-out Kru and Sherbro canoes. However, this was not the only method employed in the bonga fishery, for Hornell mentions three others. He reported that fishermen sometimes used draw-nets, staked weirs during the rainy season, and beach seines.⁵⁵

The second key production factor inhibiting the growth of the fishing industry in Tombo was the absence of a viable bulk processing

technique. Fish was, and remains, the most important protein source for the great majority of the population in Sierra Leone. It is generally consumed in stews, which in the nineteenth century were referred to by the Sherbros as oopom, by the Temne as seka, and by the Europeans as 'palaver sauce'.⁵⁶ Today, this stew is most often called 'palm-oil chop.' In the nineteenth and early twentieth centuries, the processing of bonga and its importance to the indigenous diet in Sierra Leone was commented on by Hornell, who remarked that bonga was

cured bone-dry by means of grilling and smoking over mangrove fires. The product is dry and nearly tasteless; for all that it is in high esteem and a valued ingredient in 'palm-oil chop.'⁵⁷

While the demand in the Colony and Protectorate for processed fishery products was high, the technology available to meet this demand was limited. The most common methods of fish processing was frying, grilling with hot smoke, and salting. The process of smoking and frying was observed by Winterbottom:

They preserve fish for a few days by drying it in smoke. When going on a journey, they sometimes fry it in palm oil until quite dry; and then pack it close in an earthen jar, previously well heated, and having its mouth closely covered with plantain leaves. In this manner the fish may be preserved for three months, or longer.⁵⁸

The smoking oven or banda was relatively simple in its construction. Hornell described it as

a framework made of two parallel poles, about 6 feet distant from one another, supported at about 20 to 24 inches from the ground upon short stout posts having a crutch or fork at their upper end.⁵⁹

This framework was then covered with wooden sticks placed perpendicular across the width. By 1928, wire mesh was introduced in some parts of Sierra Leone Colony and Protectorate, a factor that probably increased

the amount of fish that could be processed, but we do not have any production data for this period. We do know that processing of fish consumed enormous amounts of time, requiring about three days of a woman's time to complete the smoking/grilling process, and the quality of the product varied greatly. The wood that was most commonly used and preferred for smoking was the mangrove.⁶⁰

The third most common method of fish preservation in the Colony was salting, sometimes combined with sun-drying. According to several informants and substantiated by Hornell, salting was sometimes practiced by maritime fishermen directly on their vessels while at sea. This was usually performed after the preferred method of grilling had been attempted in the fireboxes on board. If the catch was quite large, the men fired as much as they could and then salted the remainder or as much of the remaining catch as there was salt to cure. Tombo fishermen, who took these three days to a week trips out to sea belonged to a local fishing society called the Messer Society.⁶¹

Other fishery products were only sun-dried. Hornell described one such fishery near Freetown:

Very young anchovies, locally called 'white bait,' swam in immense myriads in shallow water at the end of the rains; the village women work this particular fishery, wading into the shallows with their specific net, the bimbe, and even with strips of clothing; great quantities are drawn ashore and dried in the sun without salt. Sacks filled with such dried white bait are common objects of sale in the streets of Freetown.⁶²

Beyond the problems of inadequate production technology, the small-scale maritime fisherman had to overcome the obstacles of a poor infrastructure, particularly roads, necessary to facilitate the integration of the fishing communities into the larger market economy in which their

surplus could be exchanged. Throughout the colonial period, the food economy in Sierra Leone remained in the hands of peasant producers, and the economic reality for the Tombo fishermen was underdevelopment and poverty. The sale and exchange of fishery products were the chief means by which they could acquire goods and services beyond subsistence, including modern gear and equipment. Fishermen throughout Sierra Leone also had to cope with a low social status and self-image as compared to peasant cultivators, who economically, of course, were no better off.⁶³

A significant boost was given the Tombo community when the British Colonial Office started construction of peninsula roads during WWI for military purposes. The most important was the Peninsula Road which connected Kent to Freetown, and was completed during the war. The second significant road was the Kent to Waterloo road, completed around 1920. Previously, Western District residents had to either travel by boat up the coast from Kent to Freetown; or, they had to travel by train from Waterloo. Prior to the construction of the Waterloo-Kent road, Tombo residents had to spend up to a full day walking through the bush with their goods to reach the Waterloo railway depot, a distance of about ten miles. The new road now permitted Tombo women the opportunity to complete their business in Waterloo and return home the same day, and therefore spend more market days in Waterloo each week. These roads opened up communications with Freetown and provided Western District residents better access to the markets. Tombo women could also travel more readily to Freetown to trade for cash and consumer goods not available locally, such as tinned goods, cloth, medicines, liquor, canvas sail, fishing line, fish-hooks, and wire-mesh. The

inhabitants of both the Colony and the Protectorate were assessed taxes to help pay for these roads. Fishermen were regularly assessed three shillings for every hundred pounds of dried, smoked, salted, or pickled fish sold in the Colony.⁶⁴

From about 1930 to 1950, the Tombo fishery was in a state of socio-economic equilibrium, as it continued to meet its subsistence needs. At the same time, its interaction with the market economy of the Colony enabled the residents to obtain enough cash to pay taxes and purchase some of the necessary tools to maintain production levels in the fishery. The community itself was in gradual economic decline however, the population and infrastructure of the village began to decline from its peak population of 462 inhabitants in 1911. At this time the population surpassed that of Kent, which was estimated to have had 350 inhabitants. By 1931, only 368 persons were counted in the census. Perhaps, one obvious reason for this demographic fluctuation is the fact that during the rainy season, fishermen specializing in bonga have historically migrated south to Shenge or the Plantain Islands where they could continue to fish this species.⁶⁵ On the other hand, the number of houses remained somewhat constant, from 79 in 1911 to 75 in 1931.⁶⁶

The seasonal migrations of some Tombo fishermen reveals several key points of interest. First, it is apparent that by the turn of the century fishermen had begun to specialize in a particular fishery; essentially in the bonga fishery because of its economic value in the domestic food economy. Second, the fishermen had developed an endogenous body of knowledge about the migrating patterns of key local fish stocks, and migrated with them according to the season. Yet, on

the technical side, there was no appreciable change in the technology used to exploit the traditional resource, nor, perhaps, the market demands necessary for fishermen to develop new instruments of production to exploit new resources. Thus, there does not appear to have existed in this period the necessary forces to elevate the fishery beyond the satisfaction of domestic needs within the community.

Moreover, there was little commitment by colonial officials to improve the conditions of small-scale fishermen. Hornell's recommendations set forth in the 1928 report on the state of Sierra Leone fisheries were not acted upon. These recommendations for fisheries development were echoed in Steven's 1945 report, which drew heavily upon Hornell's experience. Steven's description of the condition of the maritime fisheries noted little significant change in the small-scale sector, but reported increased activity in the commercial sector by European fishermen using modern trawling methods. This technology was out of reach for Western District fishermen.⁶⁷

THE TOMBO FISHERY: INNOVATION AND CHANGE, POST-1950

All accounts agree that the most important modern socioeconomic development in the Tombo fishery was the arrival of the Mfantse fishermen from Ghana in the 1950's. The Mfantse are well-known for their migratory fishing expeditions along the whole expanse of the West African coast. They are credited with introducing almost all of the significant innovations that promoted the Tombo fishery into a viable commercial entity. The Mfantse are responsible for introducing the modern ring-net for the capture of bonga and herring, of which the latter fish had previously only been used for bait to catch bonga and

larger fish.⁶⁸ The ring-net, or Ali net, ranges from 200-800 yards in length, with cork floats attached to the top and lead weights at the bottom and made from modern materials (nylon). It is shot by the "net-boss" from the large bonga canoe to encircle a school of fish. Often times the fishermen must jump into the water in order to frighten the fish into the net.

The Mfantse brought to the Tombo fishery new ideas about crew size, canoe size, and division of labor. Their dug-out canoes were larger and, therefore, required six to ten men for operations. They also introduced an entirely different boat design requiring even larger crews. This was the 10 to 14 man plank canoes with complementary motorized power (25 hp outboard units). These canoes measure about 35 to 40 feet in length with a depth of over four feet and a beam of about six feet. (See Appendix 3) The larger crews made it increasingly impossible to maintain a crew solely of patrikin or matrikin relations. Furthermore, the increased boat and net sizes increased the initial capital outlay and costs of operations and maintenance.⁶⁹

The Ghanaian fishermen were also responsible for the introduction of the present banda design made up of mud bricks and topped with a wire-meshed grill, framed and supported by wood or iron poles. The new grill was larger, ranging in lengths upwards to twenty-five feet with widths from three to eight feet, permitting a hotter fire and more rapid drying. The capacity of these bandas varied from about 400 to 1200 dozen small fish (herring or bonga), thus greatly expanding possibilities for increased production. They also increased the risk, since much more heat was needed for the initial stages of smoking, thus increasing consumption of firewood. Then too, the fire had to be

carefully watched for the first three or four hours of 'smoking' in order to prevent the burning of the fish and, therefore, avoid substantial losses.⁷⁰

As a result of Mfantse competition and technology, the Tombo fishermen were compelled to reorganize their socioeconomic relationships in the fishery in revolutionary ways. Although Tombo fishermen say that they welcomed the Mfantse, there are public records which indicate serious conflicts between the two groups of fishermen. By 1960, however, the Tombo fishermen had learned the skills and accepted the new technology. Because of the initial capital outlay required, the boatowner was sometimes a non-fisherman. Women began to use their economic position in the market to also finance boats, as did other traders.⁷¹ Generally, the boat, the outboard engine, and nylon nets are owned by the boatowner. The catch is usually divided into three parts. A third of the catch goes to the fishing crew, one-third is a boat-share (i.e. as depreciation of the boat, motor, and net), and the boatowner receives a third. The boatowner receives two-thirds of the catch because of the initial capital investment and, secondly, because he/she is responsible for feeding the crew, as well as for the maintenance and operations costs of the equipment.⁷²

The crew is composed of a master fisherman, who is sometimes the boatowner, and functions as skipper; a netboss, who is responsible for taking care of the net; and several men, depending on the size of the vessel, to help toss out and haul in the net, and remove the catch. The crew may be formed from kin of the boatowner who lives in his/her compound and receive no wages, but who usually receive support later in obtaining a bridewealth for marriage. There are also a number of

drifting men who are seeking employment and subsistence. They initiate formalized patron-client relationships, whereby the patron must feed them, give them a place to stay, pay their head tax, and intercede on their behalf if they get into trouble. A client fisherman receives a share of the crew's share and may choose to sell it for cash to fisherwomen or give it to his own wife, if she is a processor. Commonly, wives of client fishermen function as cooks in the community, selling "chop" to fishing households. Some boatowners also permit the crew to fish one day a week for themselves.⁷³

In the past, almost all fish was processed by the wives of fishermen. However, with the introduction of the new techniques, the catch during the peak fishing season was often greater than Tombo women could process, even with the larger bandas. This led not only to the construction of multiple bandas by single households, but encouraged fish sellers from Waterloo and Freetown to buy direct from Tombo fishermen and process it themselves. The raw fish sold for ten or fifteen cents per dozen at the boats, and fish sellers could then market the preserved product anywhere from 25 to 50 cents per dozen depending on the market. These relationships between fishermen and fish sellers were formalized arrangements and presentations (cigarettes, tobacco, food, liquor, etc.) were a cordial way of maintaining the bonds. The economic relations adduced by such gifts can be seen as a part of a scheme of social relations permitting the expression of traditional values of reciprocity and redistribution within the new socioeconomic and technological aspects of the maritime fishing industry.⁷⁴

The increased production also had a major impact on the family. Because of the strict sexual division of labor, monogamous families were unable to meet the demands placed upon females in the processing sector of fishing households. As a consequence, over the last twenty-five years, Tombo moved from a predominately Christianized community with a monogamous family structure to a predominately Islamicized community (95 per cent), where polygamy (79 per cent) is the most prevalent familial system. Moreover, wives and husbands often keep their capital funds separately from one another, a practice which was reinforced under Islamicization. Enterprising processors could therefore buy fish from other fishermen, pool their earnings with their husbands to improve the equipment in a joint venture, or become boatowners.⁷⁵

The period from about 1955 to 1965 can be characterized as a period of economic "take-off" in the Tombo fishery. During these years, the increased production stimulated by the Mfantse led to the creation of new long distance markets at Makeni, Sefadu, Kenema, and Koindu. Lorries and fishmongers began to appear from Freetown to purchase the surplus production and carry it further into the provincial centers. This increasing activity led to new ethnic migrations, the most important of which were the Fulas from Guinea. The first of this group were hired to do odd jobs and to cut firewood for the smoking ovens. As their families followed them, the Fulas settled down into the daily life of Tombo and opened shops run by their wives. The major contribution of this group was their ability to organize the woodcutting activities and firewood supply, creating in the process a new occupational subgroup in the Tombo economy.⁷⁶

By 1967, the village had grown to a population of about 2,500 inhabitants at peak fishing season (November to May). The Mfantse fishermen were forced to repatriate from Sierra Leone by the government in the 1960's, leaving behind them an active and viable industry. Besides woodcutting, new support service employment was created for local inhabitants as well as immigrants. Today, about thirty per cent of the population (male) are involved in fishing; thirty-three per cent (women and small children) work in the processing and marketing (i.e. laying, packing, and transporting); and another approximately thirty per cent are engaged in supportive services as boatbuilders, carpenters, drivers, woodcutters, mechanics, cooks, oil and petrol suppliers. The rest of the population provide retail and community services, and includes palm-wine producers, petty traders, farmers, tailors, government employees, and teachers. The village has also attracted a few drifting men seeking to accumulate wealth quickly as gamblers.⁷⁷ This diversity in employment was created by the new technology, which required the institution of new socioeconomic relationships, while availability and flow of capital attracted labor power and new community services.

CONCLUSION

Over the past four centuries, peasant maritime fisheries in Africa have adopted a number of new food-getting technologies. Among the West Atlantic fisheries, Tombo is an example of this process. Whether or not we can look upon the Tombo fishery as a paradigm towards understanding the socioeconomic and technological histories of African maritime fishing communities must still be determined since so little

research thus far has been accomplished. Certainly, the Tombo fishery is fluid. During the almost two centuries of its history, it has shown the capacity to adapt its social relations to the demands of new technologies and fishing methods. It has not only accepted these industrial changes, but has also provided haven to "strangers" and new immigrants and benefited profoundly from these relationships.

In a subsistence food economy production and consumption are interconnected and symbiotic social elements. The supreme success of a subsistence fishery is based in the consumptive benefits, rather than the sale or exchange, derived from production. The fact that the Tombo fishery has always been able to sustain its inhabitants is profoundly important. Because of this success the resource continues to be seen as a free resource and access is granted to non-Tombo natives under traditional patron-client relationships. The fishery has never failed them; they have never known waters without fish. Moreover, they have been less constrained by traditional forms of appropriation than peasant cultivators, who cannot produce without land. Also, in the Sierra Leone context, maritime fishing communities do not appear to be constrained by traditional ruling aristocracies, nor have they established such systems themselves. While there are regular appropriations to chiefs, they do not approach those usually derived from peasant cultivators.

Finally, until recently, government intervention by both colonial and post-colonial authorities has been quite limited. For example, there are no government national fish marketing boards which often extract the surplus of farmers (particularly export crops) in restrictive ways.⁷⁸ The one national fish marketing association was

formed by fish market women in 1976 after many years of formalized activity. The main purposes of this organization are to control the daily supply of fish in the primary market centers, thus preventing flooding of markets with a spoilable product, and, therefore, to guarantee good prices to the sellers. It does not, however, attempt to legislate nor control the production processes in the fishing centers of which Tombo is a major one. The fact that the fishery products produced by the peasant fishing centers are largely directed to national markets rather than international ones also restrains government intervention.

The Tombo fishery has moved from a strictly peasant mode of production in the nineteenth century to a dual mode of production in which they are today intimately integrated into the modern market economy, with all of its inherent problems. The extensive capitalization in boats and gear, with the latter usually imported, has made the fishery vulnerable to the fluctuations in the international capitalist economy. These economic problems, like others of past decades, have not deterred Tombo fishermen. Their socioeconomic history reveals evidence of elasticity in their social and production relations. Yet, they still must overcome the key problems faced by all peasant producers in Africa: the reliance upon the sale and exchange of perishable goods without adequate post-harvest support services; low purchasing power; and obtaining an equitable return for their labor in the market place.

FOOTNOTES

1. Of the maritime fishing populations in West Africa, the Lebou of Cape Verde, Senegal, and the Mfantse of Ghana are best represented in the anthropological literature. See, for example, Angrand, n.d.; Balandier and Mercier, 1952; and Gueye, 1970, for the Lebou; and Irvine, 1947; Gladwin and Gladwin, 1971; Quinn, 1971; and Christensen, 1977, for the Mfantse.
2. Aleam, pp. 336-39.
3. Ki-Zerbo, p. 341.
4. Hopkins, p. 43.
5. Cf. Barbot, 1732 and Villaut, 1669.
6. Marees, 1602.
7. Rodney, 1970.
8. Carnes, p. 92.
9. Fernandes, pp. 94/95.
10. Labat, p. 88. "La riviere est remplie de poisson, et les habitants en mangent beaucoup plus que de toute autre viande, quoiqu'ils ne manquent d'aucune sort d'animaux, et qu'on les achete a bon marche."
11. Matthews, pp. 91-92.
12. Winterbottom, 160n.
13. Fernandes, pp. 51, 95.
14. Ibid., p. 15.
15. Winterbottom, pp. 93-94, 160.
16. Smith, p. 40; Winterbottom, pp. 89-94; Williams; Kup, pp. 175-78.
17. Monod, p. 168n.
18. Winterbottom, p. 92.
19. Carnes, p. 141.
20. Rodney, p. 17.
21. Ibid., p. 18.

22. Curtin, p. 32.
23. Tardieu, p. 34.
24. See the discussions in Marx, 1967; Shanin, 1971; Chayanov, 1966; and Wolf, 1966.
25. Faris, p. 244.
26. Hyden, p. 14.
27. Cf. Hyden.
28. Faris, 247n.
29. Anya and Parker, 1887, p. 42.
30. Cf. Fyfe; Anya, 1973.
31. Anya, p. 3.
32. Oral Interviews.
33. Cf. Peterson, 1969; Oral Interviews, Pa Johnson and Pa Kamara.
34. Oral Interviews.
35. Edwards, 1878.
36. Cf. Fyfe and Anya
37. Hair, 1977.
38. Census, 1891.
39. Oral Interviews. Although most inhabitants today still refer to Tombo as a Sherbro village, the Temne language is the lingua franca and used by a majority of the people, while Arabic has the highest level of literacy, and most of the residents consider themselves Temne (Kotnik, 1981).
40. Ibid., Pa Johnson.
41. MacCormack, 1979. For a fuller discussion on the role of women in maritime fisheries in Sierra Leone, see Kotnik, 1981 and 1982; and MacCormack, 1979.
42. Hamilton, p. 405.
43. Melville, p. 112.
44. Ibid.
45. Biller, p. 212; Peterson, p. 273.

46. Howard, 1972.
47. Winterbottom, pp. 89-90.
48. Ibid., p. 90.
49. Ibid.
50. Kup, pp. 175-178.
51. Winterbottom, p. 90.
52. Ibid., p. 93.
53. Finch, pp. 34-35; Atkins, pp. 67-72; Winterbottom, p. 68; Hornell, p. 9; Thomas.
54. Hornell, 1929, p. 4.
55. Ibid.
56. Winterbottom, p. 64.
57. Hornell, Ibid.
58. Winterbottom, p. 64n.
59. Hornell, 1928, p. 17.
60. Ibid., pp. 17-19.
61. Hornell, 1929; Oral Interviews, Pa Kamara.
62. Hornell, Ibid., p. 5.
63. Oral Interviews.
64. Goddard, p. 294.
65. Oral Interviews.
66. Census, 1931.
67. Cf. Stevens, 1947 and Hornell, 1928a.
68. Cf. Christenson, 1977.
69. Oral Interviews.
70. Oral Interviews.
71. Oral Interviews; Kotnik, 1982.
72. Oral Interviews.

73. Ibid; Kotnik, 1981.
74. Ibid.; Dumbuya; MacCormack.
75. Kotnik, 1981; oral interviews.
76. Oral Interviews, Pa Johnson.
77. Kotnik, 1981; Oral Interviews.
78. Cf. Bates for a succinct discussion of this issue.

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Appendix A

Fish Commonly Observed in the Upper Guinea Coast, 1607-1928

<u>Finch, 1607 (Walckenaer, pp. 34-5)</u>	<u>Scientific Name</u>
le mullet (mullet, flat)	Mugil, spp.
la raie (sting ray)	Dasyatis margarita
*la vieille (old wives)	Ethmalosa fimbriata
le brochet (trigga fish)	Balistes, spp.
le gardon (rudd)	Sardinus erythrophthalmus
le cavallos (Spanish)	Scomberomorus cavalla
l'epee (swordfish)	Xiphias gladius
le requin (shark, Dogfish)	Squalus acanthias
le scharker (hammerhead shark)	Sphyrna, spp.
le cordonnier	unidentified
l'able (bleaks)	species unspecified
<u>Atkins, 1721 (Walckenaer, pp. 67-72)</u>	
le requin (shark)	Squalus acanthias
le mullet (mullet)	Mugil, spp.
la skate	Raja, spp.
le dix-livres (ten-pounders)	Megalops atlanticus
*la vieille (old wives)	Ethmalosa fimbriata
le cavallot (spanish, Scamble japonicus)	Scomberomorus cavalla
le barricado (barracouta)	Sphyrana, spp.
le sucera (sucking fish)	Echeneis naucrates
le chat (catfish)	Arius, spp.
le breime (bream)	Archosargus rhomboidalis
la tropille (torpedo)	Torpedo nobiliana
les huitres (oysters)	Aassostrea, spp.
la muscade (shad)	Alosa, spp.
<u>Winterbottom, (1803), p. 68</u>	
*old wives	Ethmalosa fimbriata
eels	species not specified
snappers, red	Pagrus ehrenbergi
mulletts, flat	Mugil, spp.
cavallies (spanish)	Scomberomorus cavalla
barracoutas	Sphyrana, spp.
miller's thumb	Cottus gobio
tarpon (ten pounders)	Megalops atlanticus
swordfish	Xiphias gladius
sucking fish	Echeneis naucrates
jumping fish	Mugil cephalus
whitebait	Menidia, spp.

* Personal communication from Professor Richard Pollnac, Department of Anthropology, University of Rhode Island.

Hornei, (1929), p. 8

bonga	<i>Ethmalosa dorsalis</i> (fimbriosa)
herring	<i>Sardinella cameronensis</i>
minnow (<i>Anchoviella guirensis</i>)	<i>Sardinella eba</i>
whitebait	<i>Engraulis uncrasicholus</i> , Linn
cath (catfish)	<i>Arius hendeloti</i>
couta (barracuda)	<i>Sphyroena guachancho</i>
gwangwa	<i>Scioena</i> (<i>Crovina</i>) <i>nigrita</i>
sucker-fish or picado	<i>Echenesis naucrates</i>
red snapper	<i>Pagrus Ehrenbergi</i>
black snapper (<i>Dentex angolensis</i>)	<i>Lethrinus atlanticus</i>
groupers	<i>Epinephelus</i> , spp.
spanish-fish	<i>Polynemus quadifilis</i>
mullet	<i>Mugil falcipinnis</i>
mullet	<i>Mugil grandisquamis</i>
lady-fish	<i>Pseudotilithus senegalensis</i>
eels	<i>Muroena</i> , spp.
garfish	<i>Belone gracilis</i>
joe	<i>Caranx senegallus</i>
mackerel	<i>Cybium tritor</i>
kauri & jack	<i>Caranx carangus</i>
pollock (<i>Decaptuis punctatus</i>)	<i>Caranx chrysos</i>
shine-nose	<i>Galeoides decadactylus</i>
crocus (<i>Pomadasop jubelini</i>)	<i>Pristipoma jubelini</i>
tarpon	<i>Megalops atlanticus</i>

Appendix B

NAMES OF FISH FOUND IN TOMBO FISHERY (1982)

<u>LOCAL NAME</u>	<u>SCIENTIFIC NAME</u>
Couta	Sphyraena, spp.
Bonga	Ethmalosa fimbriata
Herring	Sardinella eba
Jumping fish	Mugil oephalus
Cowray	Caranx hippos
Tenny	Albula vulpes
Awefu (juvenile bonga) x	Ethmalosa fimbriata
Catfish	Strongylura, spp.
Lati	Ilisha africana
Butterfish	Larimus peli
Ladyfish	Pseudotolithus senegalensis
Snapper	Pagrus ethrenbergi
Shinenose	Galeoides decadacytlus
Gwangwa	Pseudotolithus elongatus
Catfish	Tachysurus gambensis
Shark	Scoliodon terra-novea
Sole	Cynoglossus, spp.
Skate	Dasyatis margarita
Spanish	Polydactylus guardifilis
Longneck	Pseudotolithus typus