

Swamp Dwellers of Bahia

by John Cordell

The introduction of modern fishing gear has altered the once stable society of northeast Brazil

The susceptibility of northeastern Brazil to natural catastrophe weighs heavily on its population, mostly peasants trapped in a semifeudal land-tenure system that is unable to absorb continuous generations of unskilled sharecroppers. To endure, many peasants must become masters at the economics of scarcity.

The government relied for years on the supposed richness of Amazonas' soil to provide a paradise for poverty-stricken peasants. Government officials predicted that the construction of the Transamazon Highway would induce peasants by the millions to flock to the rain forests, settle a new frontier, and begin a new life. But the plan did not work. Discouraged by Amazonas' thick forests and poor soil, many of the pioneers returned to their traditional homes in the northeast. The northeast, however, already had a traditional frontier of its own, a vast mangrove swamp stretching from the semiarid north coast of the state of Ceará to the southern part of the state of Bahia. In this biologically and culturally transitional world, modern Brazil ends. It is replaced by a backwash area, home to an agglomeration of swamp dwellers whose lives are bound far more to the rhythms of the tides than to a booming industrial economy.

The swamps, richly stocked with aquatic life, are owned by no one: historically, they have served as an escape hatch for the popula-

tion of the northeast. Anyone who has lost out in the wider economic order is free to enter them and engage in a combination of subsistence pursuits—fishing, slash-and-burn farming on the laurel-forested swamp border, or the collecting of forest products and the hunting and trapping of exotic birds.

Many swamp fishermen spend a part of their early lives as migrant wage laborers on nearby sugar plantations. Near the coast, however, much of the agricultural wealth is in tree crops, such as rubber, which do not require intensive labor. Nowadays there is little steady wage labor, and every morning the unemployed form long lines outside the palm oil, textile, and copra factories. When all else fails and inflation cuts deep into their meager savings, these people head for the swamps.

Unlike some financially poor but culturally independent tribesmen, the marginal peasant in Brazil is always at the mercy of an encompassing financial system. Even the swamp offers no escape from this dependency. To exploit the resources of the swamp, people must still have some cash on hand for such indispensable purchases as matches and kerosene. The latter is highly regarded as an insecticide and, when mixed with seawater, as a purgative for the infestations of tropical parasites that abound in these latitudes.

Swamp-dwelling communities are characterized by roof-high shell middens, which grow up around the rudimentary palm-thatched shelters. As the fishermen shift seasonally to new gathering areas, the middens are all that remain. The

rewards of swamp living are the accumulation of basic household provisions—fruits and berries; mangrove roots, which can be woven into baskets; palm fronds for sleeping mats; and mangrove bark from which a dye is extracted for fishnets. Tidal creeks provide eels, guppies, and crabs for baiting the longlines, while mud flats and shallows produce an assortment of mussels, clams, and oysters, which usually can be marketed to maintain a small cash reserve. The men cut tucuma, or palm fiber, for the draglines of their large nets, and poles for fish corrals and mangrove fences (traps that catch fish in the ebb tide). They also spend long hours gathering firewood and preparing charcoal for the cold and windy nights of the wet season.

On an unprecedented scale the coastal poor penetrated one of Brazil's most inhospitable habitats. In the city of Recife alone, more than 100,000 people inhabit a swamp slum that sprawls over the mud flats of the Capiberibe River. Long a temporary refuge in times of job and food scarcity, swamp living has become a permanent way of life. At the same time, fishing activity has centered increasingly on the resources of the swamp itself, rather than on net fishing in estuarine waters, until recently a profitable occupation that served to organize the communities. Many fishermen who used to fish the estuaries from canoes now work exclusively as crab scavengers and shellfish collectors, occupations that, in the structured Brazilian society, are considered to be among the lowliest.

In towns outside the swamps,



Maureen Bisilliat, Editora Abril

Swamp fishermen work with thrown nets, above left, or with nets dragged behind dugout canoes, left. Shellfish are harvested by hand in a tidal creek, above.

Stark neighborhoods nicknamed Bolivia and Brasilia are made up almost entirely of ragged crab gatherers and shellfish collectors, whose crude lean-tos or incompletely walled mud shelters are in marked contrast to the tile-roofed stucco houses of the remaining net-fishing neighborhoods.

During my stay, a residue of the most versatile net-hauling specialists continued to fish the estuary, although less for the market than for home consumption and less with their nets than with traps and trotlines that could be operated independently with low upkeep.

Hunger and disease are rampant in the swamp communities. No sooner had I moved into a house in one of the more populated swamp

districts than a woman collapsed and died at my front door. An autopsy revealed less than a thimbleful of water in her stomach. The quest for food is an endless and anxious daily improvisation; to procure the bare necessities people must be constantly on the alert. Roving bands of children forage for crabs in the swamps or beg in the town. They sleep in one place, eat in another, and find some garment of clothing in still another. Common health problems, which ordinarily could be easily taken care of, develop into long sicknesses. Among the most impoverished fishing and swamp families, the infant mortality rate ranges from 39 to 90 percent. Fishermen suffer widely from abscessed teeth and gangrenous infec-

tions that result from untreated fish bites and coral cuts. To satisfy their need for calories, children and pregnant women develop a craving for soap or laundry starch. Because illness often leads to abandonment, women-centered households are becoming the norm in many of the swamp communities I visited—a departure from the standard of the extended family of rural Brazil. A number of people, mostly men of indeterminate age, simply live alone in the swamp, oblivious of their past and seemingly indifferent to their present pitiful condition.

The scale of swamp colonization is difficult to estimate because census takers ignore these neighborhoods. Although personal registration is required by law in Brazil,

swamp settlers cannot afford the fees to renew their identity cards, and many let them lapse. A birth certificate can be obtained for five dollars from a doctor. But how many of these people know or can afford a doctor? Nor can they afford weddings or burials. The dead are usually dumped unceremoniously into the swamp.

Despite this bleak picture of deculturation, swamp dwelling appears to be a fairly recent social transition. Although dislocated environmentally, fishermen remain psychologically oriented toward an earlier, more favorable life style, which was possible under the traditional system of estuarine net fishing—a system that has changed in the past eighteen years owing to the economic impact of modernization.

In 1960, fishing from rafts and canoes—the principal inshore pattern in the northeast—was catapulted into an era of speculation and technical innovation. Entrepreneurs, as hungry to open up new

markets as the land-starved peasantry was to sell its labor, introduced nylon nets manufactured in Japan. According to tests conducted by the United Nations Food and Agriculture Organization, fish catches were far larger with nylon nets than with more traditional fiber nets. Nylon nets were promoted in the swamps as part of a modernization scheme to increase the supply of fish to urban markets in the northeast. Accordingly, a fishery improvement agency was established, chiefly to educate peasant fishermen in the use of modern gear and motorized vessels and to reorganize the traditional guilds into cooperatives.

The plan looked good on paper. As an incentive to increase productivity, large quantities of nylon nets were made available to private investors who could arrange attractive financing through the Banco do Brasil. These investors would also act as middlemen, selling the nets directly to fishermen or farming

them out on a profit-sharing basis. To insure that the fishermen used the new equipment, the middlemen introduced nets that most closely resembled traditional beach seines (gill nets particularly adapted to stingray fishing) and mullet nets (which either encircle a school or drift with the tidal current).

The decision to promote technological innovation proved to be a costly mistake. For the fish of the local estuary—especially stocks of shrimp, flounder, and snook—the finely meshed nylon beach seines were a deadly adversary. Even in clear water, fish cannot see nylon and the 2-cm mesh traps fry as well as adult fish. When the use of nylon nets became widespread throughout the swamps, as many fish died and rotted in the tidal creeks as were caught and sent to market.

Fishermen, too, had trouble with nylon; some went blind mending the almost transparent filaments. But nylon's impact was felt most in the traditional net-fishing neigh-

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The Algodos slum, above, which housed 20,000 people, was recently razed by the government, but many slum districts, above right, still exist in Bahia. Right, a fisherman goes to market.

borhoods since it changed the entire incentive system and flow of authority in fishing.

Swamp fishermen have approximately 135 square miles of waterway available to them at different seasons. This area is divided into an inner fishing ground of tidal creeks and rivers, and an outer ground that includes the main estuary, tidal inlets, the surf zone, and fringing reefs. Traditionally, fishing in the mangrove swamps and adjacent waters was limited not by the size of the area but by the fishermen's perceptions of time. As in other maritime cultures, time was

marked by both the recurrence of the seasons and the constancy of the tides.

During spring, for example, a six-knot tidal current sweeps up and down the estuary, strongly affecting the efficacy of the different types of nets. The same current might impede the efficiency of one type if used against the tidal flow, increase the efficiency of another, and preclude the use of a third. Fishermen classified the grounds according to the varying tides along the course of the estuary and chose their fishing spots and methods on a day-by-day basis, always allowing for the mechanical influence of daily and fortnightly tidal rhythms.

An understanding of lunar periodicity and its effect on the move-

ments and concentration of marine organisms was also crucial to success; through such knowledge, fishermen could pinpoint the migratory patterns of the more highly valued species—white and yellow catfish, bluerunner, and gray mullet.

Mastery of lunar-tide reckoning was thus essential for successful fishing in the swamps, and apprenticeships to acquire this knowledge were judiciously controlled by captains of the fishing canoes. In the long run, possession of this knowledge was a prime factor in controlling fishing pressure. Following the lunar-tide calendar not only helped the fishermen synchronize boat movements and the choice of fishing methods according to biweekly

and daily tide fluctuations, it was also an important element in conservation. The precise work routines established by fishing captains—and dictated by lunar periodicity—assured the continuing availability of estuarine stocks. To a swamp fisherman, a fishing spot is not purely geographical, but rather a temporary locale whose productivity is determined by the lunar phase. Since the tide goes through two complete cycles (spring to neap and back to spring) every twenty-eight days, each day in the cycle opens up a different set of fishing spots in the estuary. The lunar-tide calendar is a precise index of changes in fish behavior.

Given these natural limits to the expansion of estuary fishing, it was

not surprising to find that fishermen established definite property claims over lunar-tide fishing space, claims that firstborn sons and apprentices inherited. Because these territories always changed according to the lunar phase, charges of overexploitation by certain individuals or villages did not conform to the common-property theories ordinar-

Below, a line fisherman snags a ray. Both traditional, dark fiber nets, right, and finely meshed, blindingly white nylon nets, below right, are used to fish the rivers and estuaries.

ily used by anthropologists to explain overexploitation in both open ocean and inshore fisheries. In the absence of a formal legal system to prevent encroachment, fishermen relied on a cooperative ethic and an

Left, a fishing boat sails out into the Una River. Below left, shops, government offices, and a marketplace line Valença's waterfront. A passenger on a ferryboat, below, has just purchased a fish from a fisherman in his dugout.

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informal procedure for airing disputes called *olho do povo*, literally, "the community eye."

Liquid capital is almost nonexistent in swamp towns, so to make ends meet, fishermen fell back on elaborate borrowing/lending networks. Fishing etiquette involved a constant flow of small favors and gifts—towing in from the fishing grounds, lending bait, transporting the sacred wood of the white mangrove for use as a house beam, selling to a fish hawker on credit, or sharing premium water spaces during spawning runs.

Kinship and godparenthood relations further tied fishing captains together in friendship circles, which

minimized disputes and legitimized territorial claims. Thus, by integrating daily observations of lunar-tide influence with elements of Portuguese, African, and Indian maritime lore, the isolated swamp communities built up an adaptive, stable system for fishing a tropical estuary. The system not only provided fresh fish for a limited market of sea and river ports but also assimilated and socialized new generations of fishermen in a reciprocal economy supported by cooperative fishing etiquette.

Introduction of the nylon nets changed all this. In less than a decade, this four-century-old tradition disintegrated. Although the nylon

nets were originally intended for purchase by traditional captains, they eventually rejected the innovation, not out of inherent conservatism, but because they could not meet the loan-repayment schedules. Consequently, the nets fell into the hands of wealthy middlemen—factory bosses, plantation owners, and textile merchants—who could afford to speculate in fishing. Many fishermen, already indebted to these entrepreneurs, were drawn into an easily exploitable pool of cheap labor.

Over the next few years, a highly competitive nylon-net-fishing enclave grew up across the river from the traditional community where I

lived. Fishermen who had never been apprentices were put in charge of 30-foot dugouts. Discontinuing the customary system of dividing catches among crew members, nylon net bosses paid crews fixed wages, which although minimal by most standards, nonetheless appealed considerably to the security-minded peasant fisherman. Rent-free quarters were provided in a local factory compound. Between 1960 and 1965, 70 to 110 nylon net crews, using more than 600 new nets, were added to the traditional fishing system. But in the long run the anticipated replacement of fiber nets by nylon ones did not occur. Rather, too many nylon nets were added for the few water spaces available to accommodate them.

Fishery biologists generally agree that because of wide species distribution and the existence of planktonic larvae, overexploitation of stocks by traditional gear is unlikely. Under conditions of low population density, swamp communities had fished the same grounds since colonial times without having to shift their settlements because of resource depletion. Local waters are cyclically replenished by pelagic schools that seek out the sheltered reaches of the mangrove to feed and spawn.

In the ensuing struggle for control of the fishing grounds, the traditional ratio of fishermen to water spaces was shattered and the system of territorial claims disintegrated. The fishery reverted to the status of common property with all the attendant drawbacks of overcapitalization and overfishing. Cut-throat competition followed, with boats cast adrift on the tide and nets dynamited or slashed with machetes. The nylon drift nets set at night and allowed to float in the main channel were particularly hazardous to other set gear, easily snagging in the traditional trotlines and stingray nets.

Since they did not own their own equipment and were employed by a nonfishing power base, nylon net fishermen were willing to take greater risks and felt little responsibility for their actions on the fishing grounds. Economic warfare eventually took its toll. Traditional

net fishermen were increasingly lured into high-risk stratagems they could not afford. Some decided to set aside their remaining equipment and wait out the strife.

With the advent of nylon nets, overall production briefly increased but in time catches began to decline. Nylon net crews were laid off. Traditional captains, too, were forced to let their crews go and shift their operations to the recesses of the swamp itself: working small fish corrals with their wives, moonlighting as fish hawkers, combing the tidal flats alone with hand-cast nets, or scavenging for crabs, which to a net-fishing captain are animals hardly worth eating.

Lunar-tide fishing will soon be a lost art in Bahia as more and more energy is directed to individual, rather than community, survival. Whether the extreme phase of deculturation found in this segment of the Brazilian peasantry will be offset by a corresponding assimilation of new values, skills, and opportunities is still an open question. Highly specialized fishing knowledge, however, need not always be lost through speculative modernization. There is an alternative—preserving the traditional system and then building on that established base. Prior to the introduction of nylon nets, fishing captains in the swamps had partially solved the perennial problem of controlling access to the fishery by using a rigid fishing space tenure system that challenges usual common property theories. A strict cooperative ethic and long-term apprenticeship arrangements further reinforced their territorial claims. Today most swamp fishermen live lives of despair, while entrepreneurs, who have no long-term stake in the welfare of the fishery, have captured the swamp's most marginal subsistence resources, traditionally the reserve of the poor. □

The swamp and river fishermen use small rafts as well as dugouts and sailboats when they work the fishing grounds.