Caribbean Reef Fish: Fish Traps and Management

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RESUMEN

En Norte América, la mayoría de los pescadores de las costas del East y del Golfo tienen en mente meros y pargos cuando hacen referencia a los peces de los arrecifes. En el Caribe, los peces de los arrecifes incluyen no solo meros y pargo sino una gran variedad de otras especies, de diversidad de colores, que constituyen parte de la pesca rutinaria de esta área. Peces de todos los tamaño, menor es la posibilidad de que estos ocasionen en los humanos el envenenamiento conocide como "Ciguatera."

El arte tradicional de pesca en los arrecifes de aguas llanas, es el cajón o nasa, ("fish trap" o "fish pot"). Los diseños originales fueron importados del Africa en los barcos que transportaban esclavos. Por consiguiente, los arrecifes del Caribe han sostenido este tipo de pesca por cientos de años y aun constituyen el principal método de pesca de nuestra area. Ocasionalmente se capturan meros y pargos utilizando anzuelos, en aguas más profundas que fluctúan entre las 50 y 250 brazas.

El Consejo de Administración Pesquera del Caribe está preparando planes de manejo pesquero para los peces de los arrecifes de aguas llanas y para peces de los arrecifes de aguas profundas. Estos planes, como es natural, incluirán determinaciones sobre el Rendimiento Máximo Sostenible ("MSY") y el Rendimiento Optiomo ("OY") de dichas pesquerías. En consideración a la actividad pesquera de la región, el Consejo determinó que el Plan de Manejo Pesquero de las aguas llanas tiene que basarse mayormente en la utilización de nasas que, además, constituyen el arte de pesca responsable de la captura de la mayor parte de las langostas. Sin embargo, para fines de administración pesquera, las langostas han sido incluídas en otro plan de manejo pesquero. En ningún momento ha pensado el Consejo en recomendar que las nasas o cajones se consideren un método ilegal de pesca. Por el contrario, se procura que éstas resulten útiles a las necesidades de los habitantes del área.

In view of the present controversy in Florida regarding the use of fish traps, it should be understood that this paper is not to be taken as either a pro or con statement for what should happen in Florida. I will discuss some aspects of the situation in the Caribbean and attempt to illustrate what I believe to be some fundamental differences between the Caribbean basin and the lands, waters, and people outside that area. These include many important geographic, geologic, climatologic, biologic, sociologic and economic factors. I will touch on several of these as we progress.

Since there are several papers to be presented which will discuss the quantitative aspects of fish pots, I will dwell mostly on the socio-economic aspects of the Caribbean fishery. I do this because the Fishery Conservation and Management Act demands that Maximum Sustainable Yield (MSY) be modified unto Optimum Yield (OY) by the addition of socio-economic factors. To my mind, these are the factors which differ the most between the geographic regions and between societies.

The Act established 8 Regional Councils which are mandated to prepare Fishery Management Plans (FMP's) for the fisheries within their zones or jurisdiction. One of these Councils is the Caribbean Fishery Management

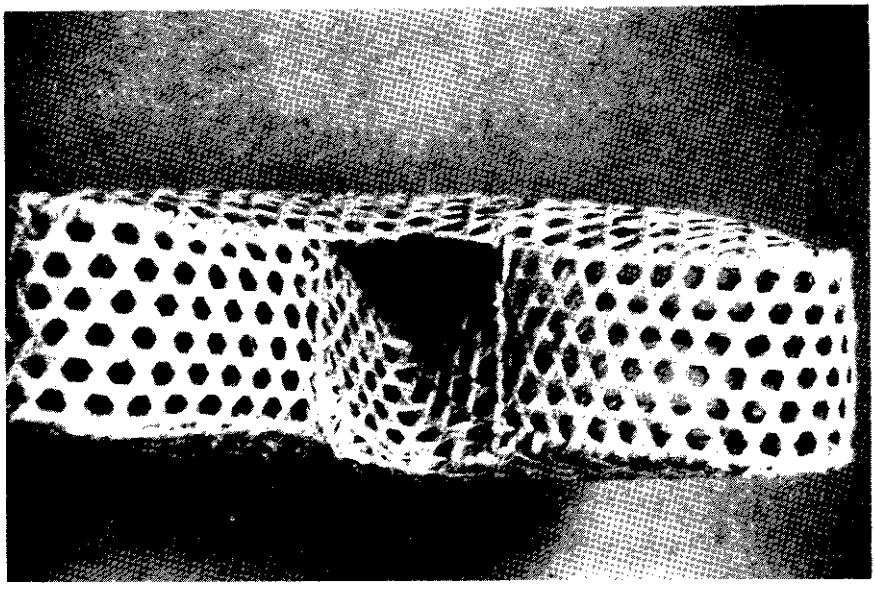

Fig. 1. A small unbraced pot from the Leeward Islands made of split bamboo. It is very similar to pots from West Africa.

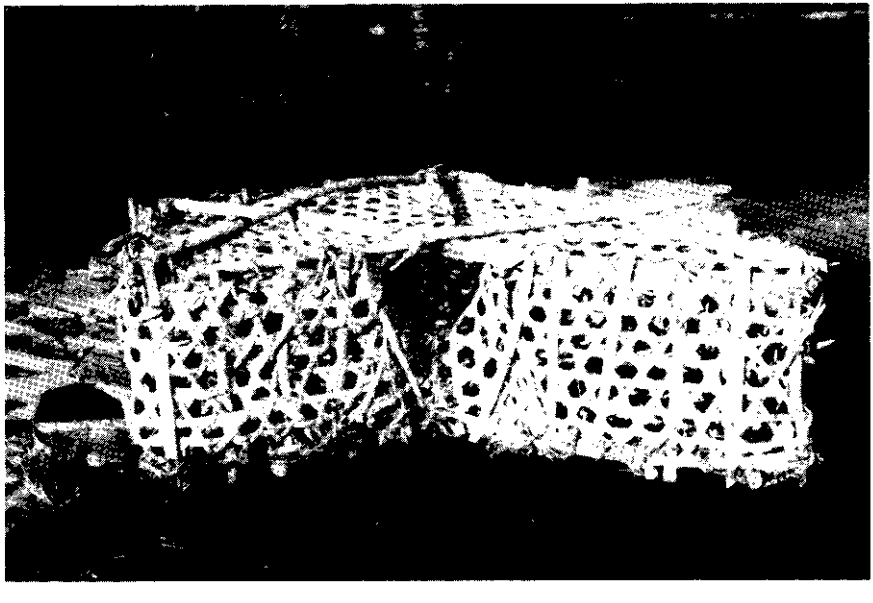

Fig. 2. A large "hoop-vine" pot from the British Virgin Islands where bamboo is uncommon. A few nails are the only metal components.

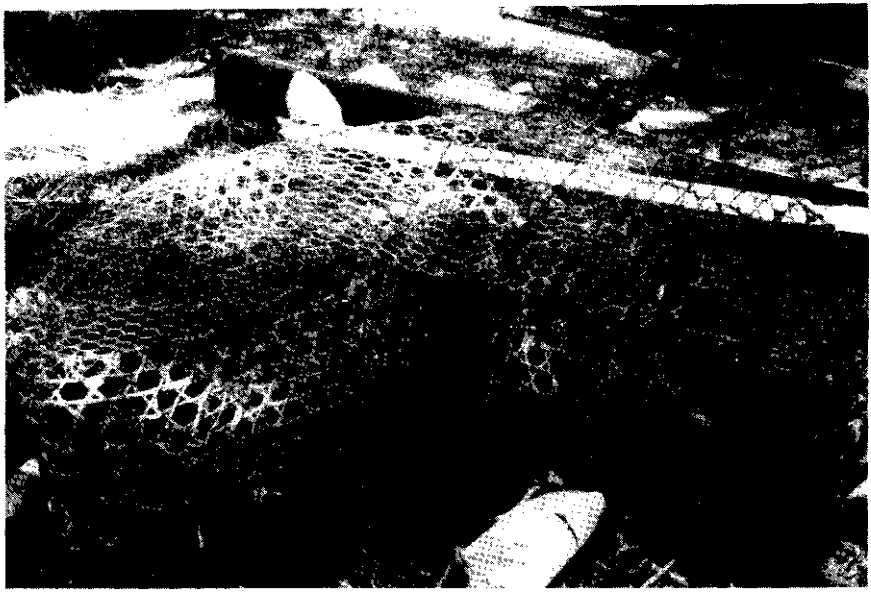

Fig. 3. A woven "hard-wire" pot from the American Virgin Islands. This example illustrates "modernization" by the use of chicken wire for the top and bottom panels.

Council (CFMC) whose zone of jurisdiction includes those waters surrounding the American Virgin Islands and Puerto Rico with its offshore islands.

The two fisheries to which the Council assigned top priorities for management plans were those for spiny lobster and for shallow water reef fish. These are both pot or trap fisheries and the same gear harvests both groups of animals. However, there are differences in gear efficiency. Wooden Florida-type lobster pots harvest a lower percentage of finfish. The West Indian-type wire fish pots, while harvesting most of the lobsters, are less efficient in terms of CPUE for lobsters than the regular lobster pot. Since a fishery can be defined on a gear basis as well as on a species basis, the CFMC may at sometime consider the possibility of combining these two biological groups into a single pot or trap FMP.

The fishery in these two plans involves about 2,500 fishermen and 15,000 pots or traps. The annual landings are on the order of 11-12 million lb with 308,000 lb of this being lobster. Total investment is around 6 million dollars. The fishery takes place in an area of 2,115[2] nautical miles at depths ranging from one to about 100 fm with most of the effort at less than 50 fathoms. Both landings and CPUE are still going up, but most estimates indicate that we are working rather close to MSY. This is not a heavily capitalized industrial fishery. Approximately 83% of the boats are less than 26 feet long and many of those that are larger are sail boats. Established processing and distribution segments of the industry are virtually nonexistent.

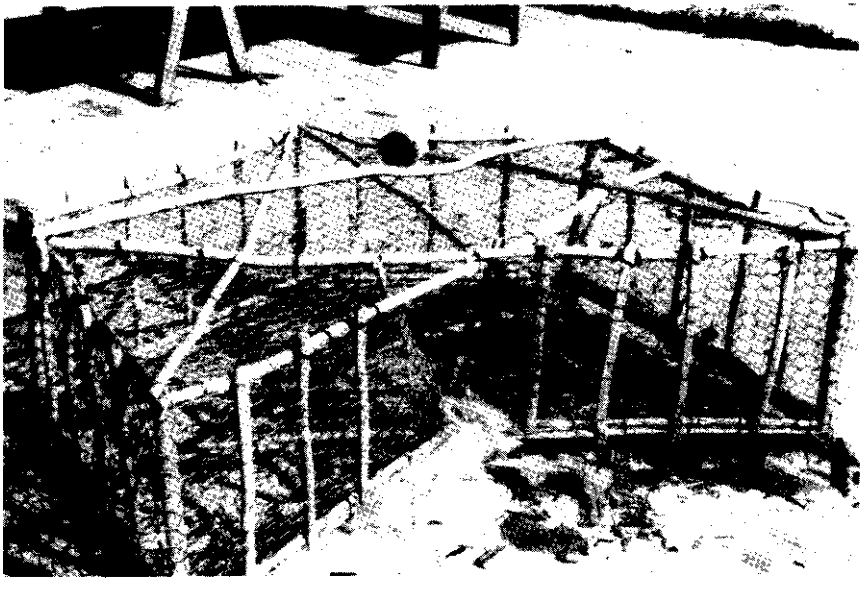

Fig. 4. A typical chicken wire pot from the Virgin Islands. All parts are metal except for the bracing which is cut from hardwood.

In coral reef areas all over the world, fish traps (called "pots" in the islands) are the most common and efficient gear. They can be set and hauled from the small open boats and canoes typical of such areas. Trawls and other such gear require more power, are readily damaged by the coral structure and in turn damage the reef habitat. Handlines, while effective for certain species under some circumstances, obviously must be constantly attended. Fixed hook and line gear such as miniature long lines and vertical set lines are again effective in limited situations but have many drawbacks.

The design of fish traps which is in common use in the Caribbean arrived there with the slave ships from Africa. Materials have evolved over the years but the basics are still in use.

Pots or traps are often baited, and some studies have indicated that it seems to make little difference for finfish CPUE whether bait is used or not. Many fish species seem attracted to pots for other reasons than feeding and it is well documented that at least some species enter and leave traps at will, regardless of bait.

Traps (including typical wooden lobster pots) certainly catch many species of reef fishes, and the FMP for shallow water reef fishes being drafted by the CFMC considers 13 families, 20 genera and 35 species as regular components of the catch. By common family names these include groupers, grunts, parrot fishes, goatfishes, squirrelfishes, snappers, triggerfishes, porgies, wrasses,

Fig. 5. The latest technology in the West Indian chevron-style pot. Typical of Puerto Rico, it is all metal with the framework made of welded concrete reinforcing steel rods.

trunkfishes, butterfly fishes, angelfishes and surgeonfishes. Individual sizes range from a bare 4 ounces to around 50 lb.

At this point, we need to consider one of many differences between Florida, most of the United States and the Caribbean region, or even most of the other coral reef areas of the world. At the time and place when I was growing up a half century or more ago in the interior western U.S.A., it was believed by most of my neighbors that no civilized person would eat a fish head and certainly would shun some of our common warm water species as table fare. Well, suffice it to say that for the past 16 years or so I have rarely failed to eat the heads of fish and have eaten and enjoyed most, if not all, the species in the list I just read. In the Caribbean all animals caught in fish traps are utilized. Moreover, all parts of the animal except for the viscera are eaten. Only the largest fish are filleted and even then the head and frame are used in the preparation of soups and stocks. Smaller fish are almost invariably served with the head after being skinned or scaled. The only instance of this method of serving that is widely tolerated in the states is in the case of trout. For some reason these are frequently served entire without being scaled.

The smaller species of reef fishes such as surgeonfishes, grunts, butterfly fishes and goatfishes are preferred by many West Indians because the incidence of ciguatera fish poisoning is lower in these animals.

The point of all this of course is that people in the Caribbean do not kill and waste the fish that many people in Florida consider to be aquarium fishes. Morally there is no more justification for eating a mullet, speckled trout or

shellcracker than there is for eating a queen triggerfish, angelfish or parrotfish.

In recognition of all the foregoing, the CFMC has recommended the following regulatory concepts for fish traps in its area: (1) a minimum mesh size of 1¼ inches to restrict the harvest of immature fish; (2) an escape panel at least as large as the throat of the trap and with a life expectancy of no more than three months; and (3) each trap shall identify the owner. Other regulations requiring reporting and prohibiting the use of explosives and chemicals are included also.