

## Fishing Gear and its Methods **Krzysztof Surowka\***

Agricultural University of Krakow, Poland

**Corresponding author:** Krzysztof Surowka

✉ krzysztof@surowk.edu.pl

Agricultural University of Krakow, Poland

**Citation:** Krzysztof Surowka (2022) Fishing Gear and its Methods. *J Fish Sci*, Vol. 16 No. 8: 105.

### Abstract

Fishing gear and methods used in Uganda are both modern and traditional. Fish in Uganda are caught mostly with plank canoes and to a lesser extent, fiberglass boats. Some dugout canoes are also still being used. The plank canoes are generally 4-12 m (13.12-39.37 ft) in length and dugout canoes average 3.5 m (11.48 ft). The total number of vessels is about 17,000 and about 20% of these are motorized. Artisanal fishermen use various gear including gillnets, seines and hook and line. In a number of localities, traditional methods including baskets, traps and mosquito nets continue to be used. The gear commonly used includes gillnets, lift nets, scoop-nets used in light fishing; hook and line gear (hand-lines, fishing rods or tackles) and fish traps [1].

**Received:** 02-Aug-2022, Manuscript No. IPFS-22-12978; **Editor assigned:** 04-Aug-2022, Pre QC No. IPFS-22-12978 (PQ); **Reviewed:** 18-Aug-2022, QC No. IPFS-22-12978; **Revised:** 23-Aug-2022, Manuscript No. IPFS-22-12978 (R); **Published:** 30-Aug-2022, DOI: 10.36648/1307-234X.22.16.105

### Introduction

Fishing is the activity of trying to catch fish. Fish are often caught as wildlife from the natural environments, but may also be caught from stocked bodies of water such as ponds, canals, park wetlands and reservoirs. Fishing techniques include hand-gathering, spearing, netting, angling, shooting and trapping, as well as more destructive and often illegal techniques such as electrocution, blasting and poisoning. The term fishing broadly includes catching aquatic animals other than fish, such as crustaceans (shrimp/lobsters/crabs), shellfish, cephalopods (octopus/squid) and echinoderms (starfish/sea urchins). The term is not normally applied to harvesting fish raised in controlled cultivations (fish farming). Nor is it normally applied to hunting aquatic mammals, where terms like whaling and sealing are used instead. Fishing has been an important part of human culture since hunter-gatherer times, and is one of the few food production activities that have persisted from prehistory into modern age, surviving both the Neolithic Revolution and successive Industrial Revolutions. In addition to being caught to be eaten for food, fish are caught as recreational pastimes. Fishing tournaments are held, and caught fish are sometimes kept long-term as preserved or living trophies. When bio blitzes occur, fish are typically caught, identified, and then released. According to the United Nations FAO statistics, the total number of commercial fishers and fish farmers is estimated to be 38 million. Fishing industries and aquaculture provide direct and indirect employment to over 500 million people in developing countries. In 2005, the worldwide per capita consumption of fish

captured from wild fisheries was 14.4 kilograms (32 lb), with an additional 7.4 kilograms (16 lb) harvested from fish farms [2].

Fishing is an ancient practise that dates back to at least the beginning of the Upper Paleolithic period about 40,000 years ago. Isotopic analysis of the remains of Tianyuan man, a 40,000-year-old modern human from eastern Asia, has shown that he regularly consumed freshwater fish [3, 4]. Archaeology features such as shell middens, discarded fish bones, and cave paintings show that sea foods were important for survival and consumed in significant quantities. Fishing in Africa is evident very early on in human history. Neanderthals were fishing by about 200,000 BC. People could have developed basketry for fish traps, and spinning and early forms of knitting in order to make fishing nets [5] to be able to catch more fish in larger quantities.

During this period, most people lived a hunter-gatherer lifestyle and were, of necessity, constantly on the move. However, where there are early examples of permanent settlements (though not necessarily permanently occupied) such as those at Lepenski Vir, they are almost always associated with fishing as a major source of food.

### Long line

The long line method developed in the 1980s for the effective exploitation of predatory fish e.g. *Lates niloticus*, *Protopterus*, *Clarias*, *Bagrus* etc. A typical gear comprises a long length of a mainline 100–300 m (328.08–984.25 ft), rigged with monofilament twine (diameter 1.00-2.00 mm) or multifilament

twine (ply 36–60) and bears short snoods 0.3–0.8 m (0.98–2.62 ft) carrying baited fishhooks. A long line is prepared for setting in the morning or afternoon by a crew or hired men (1-2). Hooks are baited with natural baits (e.g. small live fish, slices of meat, earthworms and insects) [6]. The gear is set late in the afternoon in a predetermined fishing ground and left to fish passively overnight. Hauling is normally done early next morning the quality of fish harvested by this method is usually good.

### Angling gear

Handline (the simplest and cheapest gear) is manually operated by one person along the lake beaches or on riverbanks. Effective angling is done in calm waters early in the morning or evening or on dark nights. A set of handlines can also be operated as trolling gear. This is a prospective commercial fishery on Lake Victoria, Lake Kyoga, and Lake Albert, targeting predacious species like Nile perch and *Hydrocynus* [7]. Fishing rod or tackle is mechanically operated by one man using a reel fixed on a springy plastic rod. Its mainline is baited with a fish lure. Angling for *Lates niloticus* on Lake Victoria or for trout on River Sipi in Kapchorwa District is a lucrative activity particularly for the foreign tourists who adopt this fishing method. This method may use live bait and the catching of bait (immature fish) using small mesh-sized gillnets; seine-nets and fish-trap can be detrimental to the fishery.

### Fish-traps, baskets and weirs

Various designs of fish traps, baskets and weirs are used in fishery [8]. Conical traps are used most commonly for catching fish species such as *Clarias*, *Barbus*, *Schilbe* in marshy shallow waters of lakes, rivers and in permanent and seasonal swamps. These are particularly used on River Nile, Lake Kyoga, swamps and other minor lakes. The gear is strategically set as a barrier and fish voluntarily or involuntarily enter it, but their escape is hindered by a special non-return valve or device [9]. Traps set in the river estuaries and papyrus fringes indiscriminately trap fish (*Barbus*, *Alestes*, *Clarias*, *Hydrocyrus*, *Protopterus*, *Labeo*) of all sizes and ages.

### Hooks

1. Chest of fish hooks for fishing Nile perch in Kalangala
2. A fisherman holding a hook for fishing Nile perch in Kalangala

Hooks are used for fishing but on a small scale. The size of the hook used depends on the type of fish. Hooks have numbers. The lower the number, the bigger the hook. Hooks used for tilapia are from numbers eleven to sixteen. Those for Nile perch are from seven to 10 [10]. Lung fish are fished with hooks of numbers six and five. Bigger hooks are used for bigger fish so that they do not break free and swim away.

On Lutoboka landing site on Bugala Island in Kalangala District, fishermen use hooks of number 12 to fish Nile perch. 1000 hooks are put in water. Sprat is put on the hook as bait. The hooks are put 5 m (16.40 ft) apart. Not all of them get fish. Sometimes the fishermen get 10 to twenty fish of different sizes. The hooks are kept in a wooden chest.

### Weather Services

Weather advisory services are not implicated as direct causes of casualties in the fishing industry. However, weather conditions are clearly the proximate cause of some casualties and contribute to many more. The availability of timely, accurate, and complete weather information for the fishing grounds and fishing ports, particularly those that are remote or prone to rapidly changing conditions, potentially would improve the opportunity for timely decision making by vessel operators.

### Conclusion

Commercial fishing, inherently a dangerous undertaking, has one of the highest mortality rates of any occupation. Furthermore, a substantial number of vessels are lost and many more are damaged or break down each year during fishing operations and transit to and from the fishing grounds. Overall, the industry's safety performance record is so poor that the availability and cost of insurance have become major sources of concern to many fishermen. Despite these facts—unlike most other maritime activities—the safety of fishing industry vessels has, until recently, gone largely unregulated. Voluntary measures relied on to improve safety have been spotty and inconsistent, though if universally applied, some appear to have significant potential to improve safety performance.

Treating safety as a total concept does not mean that all elements of the system have to be given the same priority or activated concurrently. It does mean, however, seeking an effective balance among all program elements to maximize the effective contribution of incremental costs and cumulative impacts of each. The fishing industry's safety record can be improved, but this will require mandated, systematic attention to safety throughout the industry. Greater federal involvement will be required to bring all safety measures used into a cohesive and effective program. Near-term implementation of basic safety measures is feasible by modestly expanding or building on existing resources and coordinating efforts by federal and state governments, fishery management councils, fisheries commissions, industry, and interested third parties in the administration process. Anticipated benefits for all elements of the safety program need to be balanced against the costs. In some cases, congressional authority will be required to enable implementation.

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