

NOTE

Small-scale Tunisian fishery for dolphinfish*

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SUMMARY: In this note we describe the dolphinfish (*Coryphaena hippurus*) fishery off Tunisian waters (central Mediterranean). Dolphinfish is fished from late August to early December, with the main catches in September-October, using fish aggregation devices and surrounding nets. A total of 260 boats are devoted to this fishery along the whole Tunisian coast, with an average annual catch of around 300 metric tonnes. The main fishing areas and ports are located on the central-eastern coast, which concentrates around 70-75% of fishing effort and landings. Both the seasonality of the fishery and the length composition of the catches, with a clear increase in mean size during the fishing period (from 26.0 cm fork length in August to 44 cm fork length in December), are similar to those reported in other Mediterranean areas.

Key words: *Coryphaena hippurus*, Dolphinfish, Fishery, Tunisia, Central Mediterranean.

INTRODUCTION

The dolphinfish (*Coryphaena hippurus*) fishery in Tunisia (Central Mediterranean) is poorly documented. It can be considered to have been introduced from the Sahel in the central-eastern coast, probably brought by Maltese or Sicilian fishermen a long time ago. On the other hand, it may have been introduced more recently on the northern coast and then moved to the southern coast, where this fishery was not important until the 1980s.

This fishery is currently carried out along the whole Tunisian coast (Fig. 1), and constitutes an important resource for the small-scale fleet. The main fishing areas are concentrated around Cape Bone (on the Beni-Khiar port), in the Sahel (around the Mahdia port), and in the most southern area (around the Zarziz port). As in other areas of the

Mediterranean (Galea, 1961; Massutí and Morales-Nin, 1995), this fishery is seasonal, extending from the second fortnight of August to early December.

The only available information on this fishery focuses on the description of the fish aggregation devices, the analysis of the catches and some biological parameters, and the possibility of aquaculture development for this species in Tunisian waters (Missaoui and Chakroun, 1997). The purpose of this article is to provide new data on this relevant resource, and to give an overview of the fishery based on the main results of the above mentioned paper.

FLEET

A total of 260 fishing boats from 20 harbours (Fig. 1) are devoted to this fishery. Most of them (72%) are from the central-eastern coast (around 30

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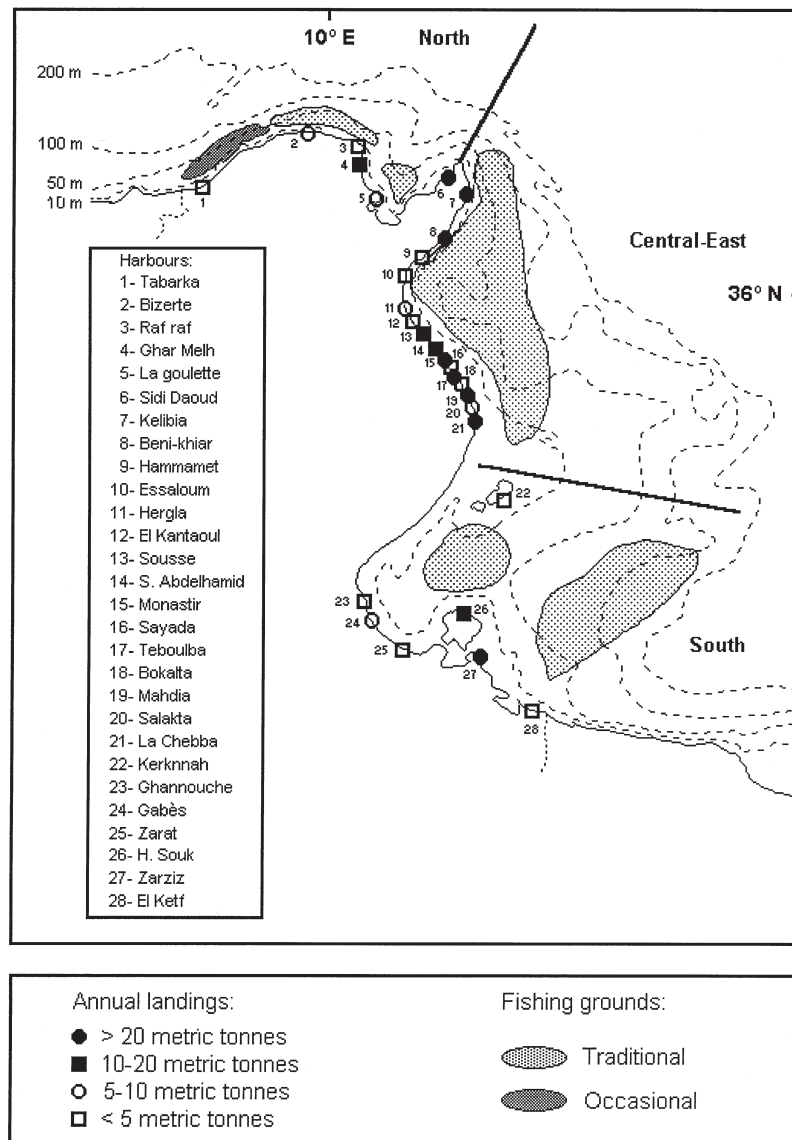


FIG. 1. – Main fishing areas and harbours for dolphinfish fishery off Tunisia (central Mediterranean).

boats in each port), while the rest are concentrated in the northern (10%, 20 boats/port) and the southern (18%, 30 boats/port) coast. In this last area there is a marked tendency towards increasing effort.

On average, the boats are 11 m in length and have a 45 hp engine. In some ports, such as Monastir, they are provided with a winch to haul the net. The crew is composed of 5 fishermen.

FISHING METHODS

The most common fish aggregation device (FAD) used is the “Ghanatsi” or “Jrid”, a trapezoidal or V-shaped wooden frame about 1 m long by 20 and 60 cm in the narrowest and widest part respec-

tively. Some palm leaves are placed in the middle (Missaoui and Chakroun, 1997). In some cases, these palms can be replaced by plastic sheets. Each unit has a rope with a ring attached to the ballast (a concrete block of 20-70 Kg) at one end, and to some floaters (usually 5-litre empty plastic bottles) in the other. There is a simplified version called “Chefchaa” used in Cape Bone, which is made only with three palm leaves with the spines covered by plastic in order to protect the net.

Each boat uses between 17 and 75 FADs during the whole fishing season. They are grouped in rows, with an interval of about 50-80 m between each two FADs, and the first one has a sign to show its owner from a distance. Each group has the name of the boat and an order number showing its place at sea (gen-

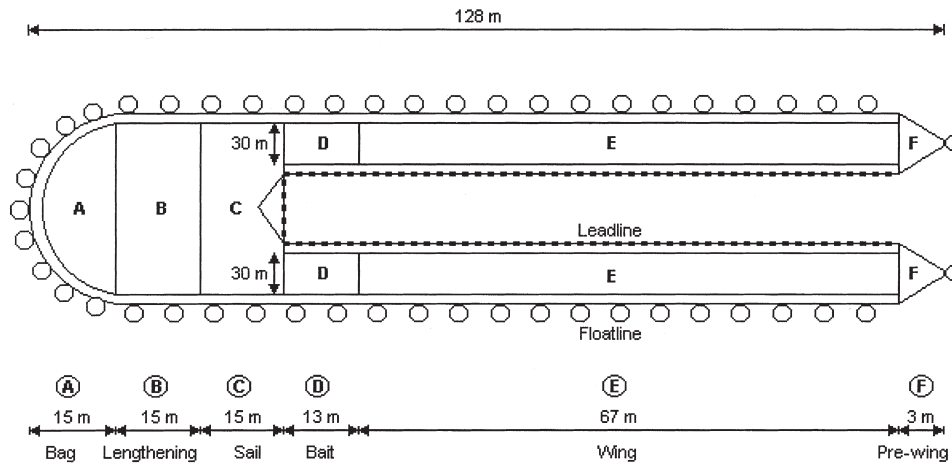


FIG. 2. – Design of purse seine used in the Tunisian dolphinfish fishery.

erally a GPS reference). The FADs are mainly anchored in areas of 30 to 60 m depth, although in some ports of the southern coast they can reach 180 m depth and around 60 miles off the coast.

The gear used is a surrounding net (Fig. 2) without purse line (called “lamboukara”), 200-300 m long and 15-35 m high, made of high density polyamide monofilament. It is composed of a central codend around 50 m long and 20 mm mesh size, and two lateral wings around 75-85 m long and 30-40 mm mesh size. Fishing operations are carried out at sunrise, and the detection of dolphinfish schools is made by observing the birds flying around FADs, the movement of the water surface, or trolling line.

CATCHES

Annual landings of dolphinfish in Tunisia have increased progressively during the two last decades, following the increase in fishing effort observed in the fishery (Missaoui and Chakroun, 1997). From 1990 to 1997, they ranged between 125 metric tonnes in 1992 and 417 metric tonnes in 1995 (Fig. 3a), with an average yield of around 300 metric tonnes. By areas, the majority of catches are landed in the central-eastern coast (around 76%, Fig. 3b), where the main fleet is concentrated, with an annual production of around 20 metric tons per port. 16 and 8% of the catches are landed on the northern and southern coast respectively.

The monthly distribution of the catches (Fig. 3c) shows the seasonality of the fishery (from August to December), with the bulk of landings (>70%) in September-October. Similarly to other areas around the world (Palko *et al.*, 1982), the period of appear-

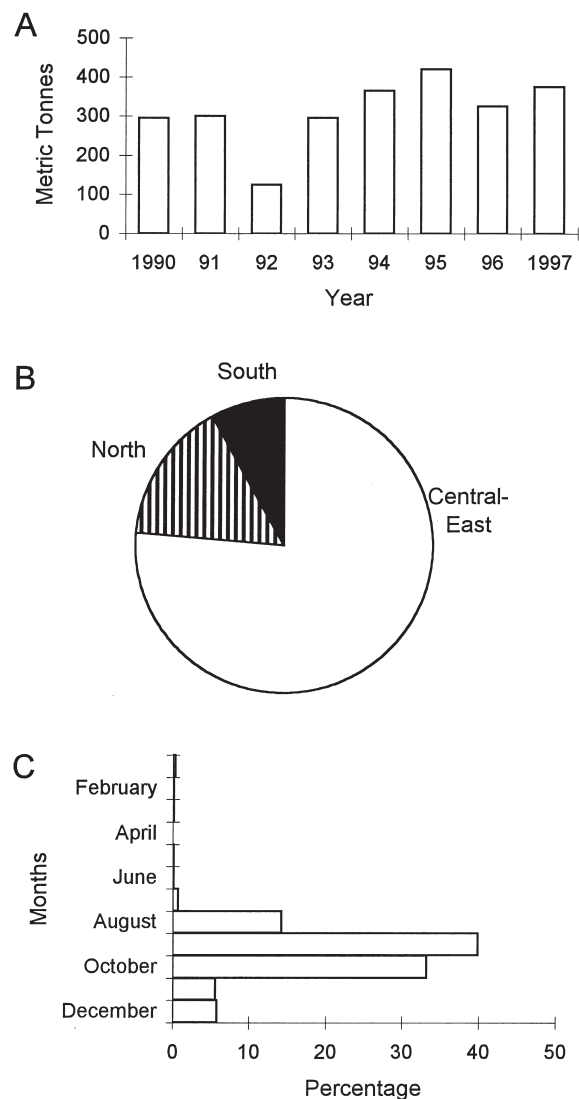


FIG. 3. – Dolphinfish catches off Tunisia: a) Annual landings from 1990 to 1997; b) Geographic distribution (the northern central-eastern and southern regions are shown in Figure 1); c) Monthly distribution (average value between 1990 and 1997)

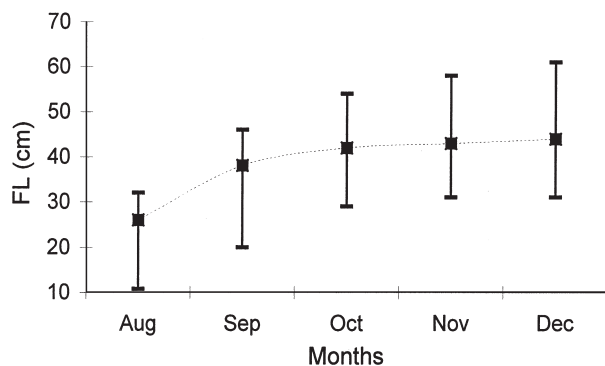


FIG. 4. – Monthly size composition of dolphinfish catches in Tunisian waters off Monastir (central-eastern region), expressed as average and range values of fork length (FL).

ance of dolphinfish in Tunisian waters is characterised by high surface temperature (18-25°C) and low salinity (Brandhorst, 1977).

The length composition of the catches shows a clear increase of the mean size of dolphinfish during the fishing season (Fig. 4). In August, the few dolphinfish ranged from 11 to 32 cm fork length (FL), while in December they ranged from 31 to 61 cm FL. The average length and age of recruits in Tunisian waters have been estimated as 15.3 cm FL and 3 months respectively (Missaoui and Chakroun, 1997). In September the fish are markedly larger, and the mean length of the catches increases significantly to 38 cm FL, while in October, November

and December it is situated around 42, 43 and 44 cm FL respectively.

Finally, we can conclude that the exploitation patterns and population dynamics of dolphinfish in Tunisian waters are similar to those reported in other Mediterranean areas (Galea, 1961; Massutí and Morales, 1995).

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