PRELIMINARY RESULTS OF CAPTURE, TRANSPORT AND ADAPTATION TO CAPTIVITY OF YOUNG OF THE YEAR BLUEFIN TUNA (*Thunnus thynnus*)

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Introduction

Domesticating a fish is a slow and complex process, including the knowledge about its behaviour and habitat, its general needs, its reproductive biology, its nutritional requirements, the larvae and juveniles physiology, the development of the techniques of massive culture as well as the knowledge about its susceptibility to diseases in culture conditions. To obtain the most of this information it is necessary to control the different phases of the life cycle in a place, which allows scientists an easy access, not only to the fish but also to its environment. In order to do that, it is important to adapt them to land-based facilities, which allows carrying out studies on aspects of its physiology, which would be very difficult or practically impossible, in the wild or in open sea facilities. Some authors have been studying the capture, transport and maintenance of the young of the year bluefin tuna (BFT YOTYs) less than 5kg in land-based facilities (Sakurai et al., 1997; Forés et al., 2000; Farwell, 2003). Besides, Sakurai et al. (1997) observed that the capture using hooks increased significantly the survival of fish of about one kilo. This method of hook and bait was already employed, with success by García-Gómez et al. (2003) but in big BFT (40 kg). In this way and waiting for the development of techniques that allows to get viable spawns and juvenile production of bluefin tuna in captivity, we might advance in the knowledge about the handling of bluefin tuna juveniles through its capture from the wild.

Materials and methods

During November 2006 BFT YOTYs were captured alive on the shore of Murcia (SE Spain), in two specific places: six miles from Cabo de Palos Port (37.55ºN, 0.66ºW) and throughout Mazarrón Bay (37.51ºN, 1.20ºW). Capture was performed using a plastic-baited barb less hook (Figure 1) in order to avoid injuries in the fish mouth. BFT were placed in a cylindrical plastic tank (1.45-1.65m Ø, 1.20m height, with 1200 litters of sea water) to transport from fisheries areas to land based facilities. The water temperature was 19-20ºC. A van with a similar plastic tank was used to transport the fish overland. A pure oxygen supply and circular water current were arranged into all the tanks. All of these devices were placed under a double PVC bottom holed to avoid any kind of obstacles against the normal swimming of tunas (Figure 1). The land-based tank was a cylindrical 20m^3 fibber glass tank (4m Ø, 2m height).

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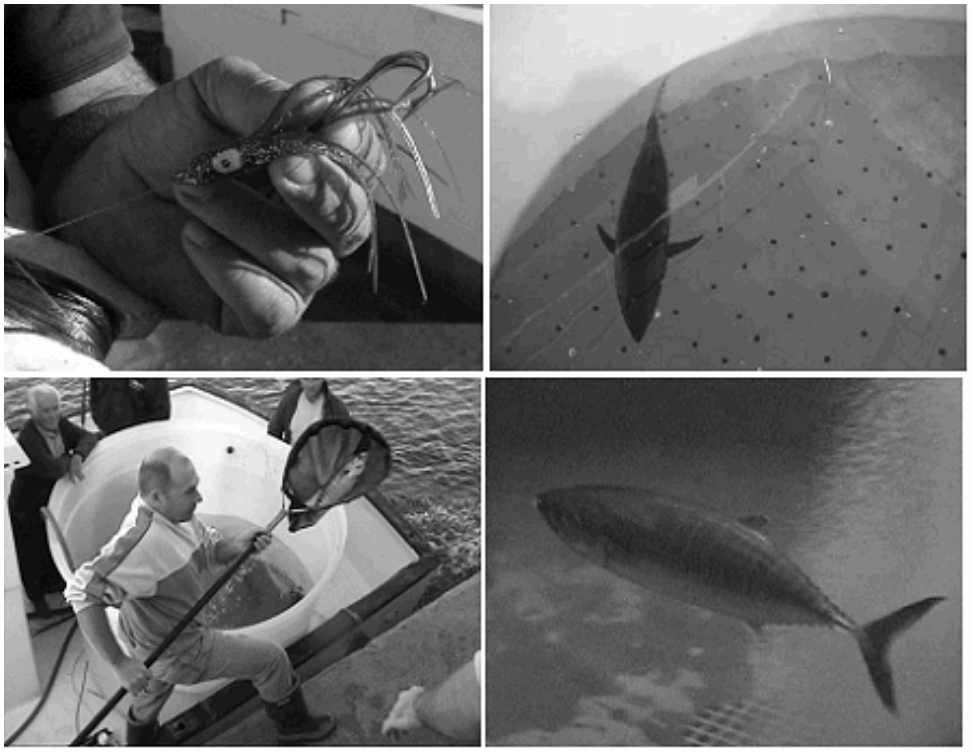

Fig. 1. Hook employed, detail of the boat tank, BFT transfer and BFT in the land-based tank.

Results

From a total of 57 captured individuals weighing 1577g ± 192 and with a 43cm ± 1.5 fork length (mean ± SD) only 12 were transported alive from the fishing areas to the land based facilities. All of individuals that swam regularly in the transport tank on the boat, withstood the overland transport and arrived alive to the IEO-Mazarrón facilities. In the land-based tank, BFT swam regularly in circles without touching the tank walls.

No fish survived more than 72 hours. The dead fish showed dark areas in their surface and injuries in the skin

Discussion and conclusion

It was possible to capture and transport BFT YOTYs around 1.5kg from the Murcia shore to land based facilities of IEO in Mazarrón. Nevertheless the survival of individuals did not go beyond 72 hours. The accidental friction with the tank walls and the handling with the rubber net when fish were transfer from the boat to the van (Figure 1) and from the van to the land-based tank could be the reason of the final mortality. Thus, it would be necessary to design a system that minimizes this friction. On the other hand, it seems very important the fish size in terms of survival. For that it would be recommendable to capture smaller animals, so one or two months before this period (in September).