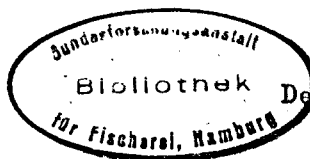


International Council for the  
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Committee



A Simple Way for Tagging Flat Fish by Means of a  
"Tagging Gun"

by

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Since January 1968 experiments have been carried out at the Institute for Coastal and Freshwater Fishery in Hamburg, to tag adult flat fish (plaice, sole, turbot, brill, lemon sole, dab, flounder) by means of two red smooth plastic discs (3 cm  $\phi$ ) mounted by a double injection needle with perlon monofilaments on each side of the flat fish (Fig. 1). When compared with the Petersen tag, this method has the advantage that the tags, although much larger, are lighter and are because of their crude red colour much better visible. Of disadvantage is that mounting and knotting the perlon monofilaments was rather time consuming.

A way for a more simple and quicker mounting the red plastic discs has been found by using a tagging gun produced by "FLOY TAG AND MANUFACTURING, Inc. 2909 N.E. Balkeley Street LA 4-2700, Seattle, Washington 98 105". This gun normally is being used for attaching price tags and other data to clothing and cotton.

The length of the needle is 2.0 cm. Especially for tagging fish and other larger animals the needle of the gun was elongated to 3.0 cm. The tags, used by the American biologists, consist of a thin nylon monofilament with one T-bar at one end and a vinyl tubing, bearing legend and consecutive numbers on the other side. A clip of 20 tags can be placed into the gun. This type of tag, so called anchor tag, is inserted into the muscles mostly beneath the dorsal fin. The tests, which have been carried out, to tag fish, were successful, but the main weakness was the inability of the fishermen, to notice the tag. Therefore, we compromised to mount the red plastic discs by means of this gun. For flat fish tagging we used a special clip consisting of 35 thin nylon monofilaments with 2 T-bars on each of the ends of it. We used the unmodified gun with a 2 cm long needle and clips with 2 cm thread length for small flat fish up to 30 cm. For flat fish larger than 30 cm we use the modified type of gun with the longer 3 cm needle and clips of 2,5 cm long threads. The unmodified gun as well as the clips can be obtained at "Ampack GmbH, 7750 Konstanz, Hafenstr. 6, Germany".

The use of this gun (Fig. 2):

A clip containing the nylon monofilaments with 2 T-bars is placed into the gun. One plastic disc with one hole in the middle bearing the legend is inserted on to the injection needle. After the needle has been pushed through the dorsal muscles of the flat fish, another red plastic disc

without legend is inserted onto the needle. By compressing the handle of the gun the T-bar of one filament is pushed by a ram lengthwise through the one side slotted needle, through the first disc with the legend, the body and the second disc. As the needle is withdrawn the T-bar turns outside of the second disc perpendicular to the path of the needle. This turning prevents the nylon monofilaments from being pulled out. The next thread has moved into position for insertion.

This tagging method has been applied in about 4 000 flat fish of different size and species in the German Bight at the end of June 1969. In case of flat fish smaller than 30 cm plastic discs of 1.5 cm  $\phi$  and threads of 2.0 cm were used. Flat fish larger than 30 cm were tagged by plastic discs with 3.0 cm  $\phi$  and threads of 2.5 cm in length. Other lengths of thread are available, but in practical tagging it is convenient to use not more than 2 types of thread length at time, and instead to fit the thread into the fish by varying the location of injection, either nearer to the vertebrate column or closer to the dorsal fin of the fish.

This tagging method is similar to the successful Petersen disc method, but has not only the advantage that the tags are better visible but also that mounting of the discs is easier and quicker by the use of the gun.

The different types of clips available allow to apply this disc method also to other species of fish as for example of the cod family.

The price of the unmodified gun is about 102,-- German marks, the nylon threads vary between 4,20 to 6,20 German marks per 1000 according to the thread length.

#### SUMMARY

Since January 1968 experiments have been carried out to tag adult flat fish by means of 2 red smooth plastic discs ( 3 cm  $\phi$  ) mounted by a double injection needle with perlon monofilaments on each side of the flat fish. A way for a more simple and quicker method of mounting the red plastic discs has been found by using a tagging gun. Clips of 35 nylon monofilaments (2.0 to 2.5 cm in length) with 2 T-bars one each at the ends are used for mounting the 2 discs. One plastic disc with 1 hole in the middle and the legend on it is inserted on to the injection needle. After the needle has been pushed through the dorsal muscles of the flat fish another red plastic disc without legend is inserted on to the needle. By compressing the handle of the gun the T-bar of one thread is pushed by a ram lengthwise through the one side slotted needle, through the first disc with the legend, the body and the second disc. As the needle is withdrawn the T-bar turns outside of the second disc perpendicular to the path of the needle. This turning prevents the nylon monofilaments from being pulled out. The next nylon thread has moved into position for insertion.

This tagging method has been applied with success in about 4 000 flat fish of different size and species in the German Bight at the end of June 1969.

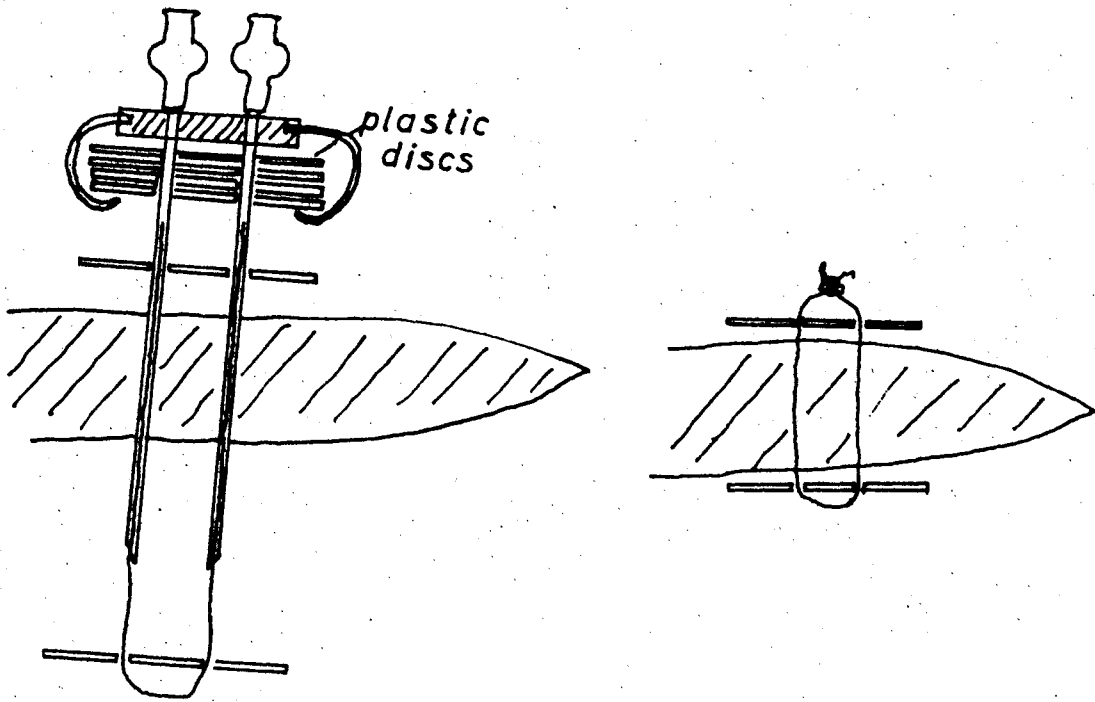


Fig. 1.  
flat fish tagging by means of a double injection needle

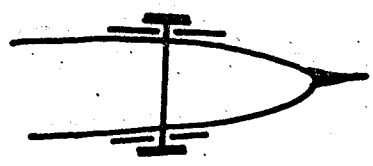
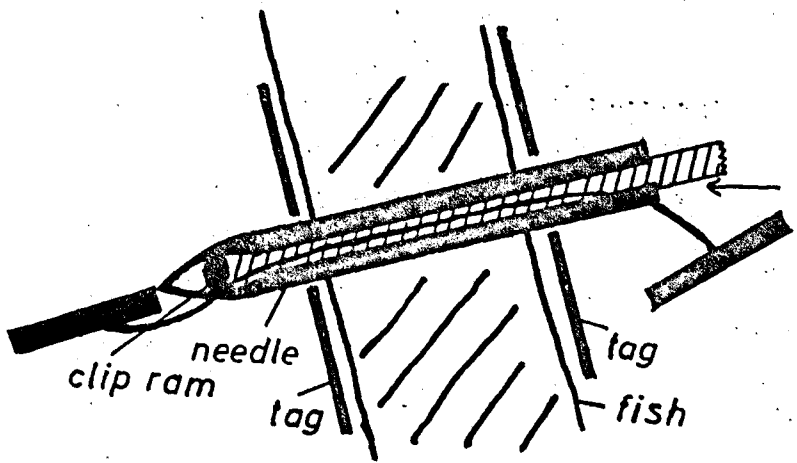
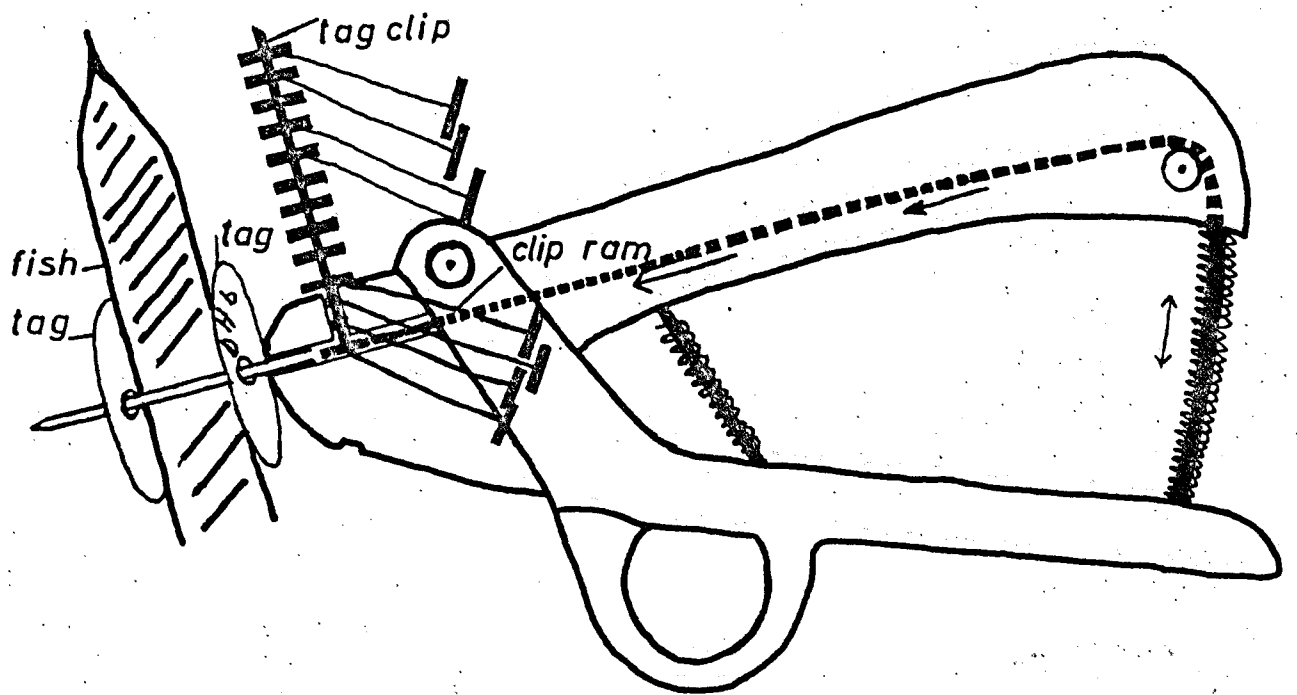


Fig. 2.  
flat fish tagging by means of a "gun"