

SERAWG-03-INFO-07

3rd Meeting of the Stock and Ecological Risks Assessment (SERAWG3)

08-11 March 2021

(online)

**CONSIDERATIONS IN THE POSSIBLE USE OF TAGS
FOR RESEARCH ON ALFONSINO FISHERIES**

Relates to agenda item: 3.6 Alfonsino future work plans

Info paper

SIODFA

Abstract

- Alfonsino rarely survive capture by trawl
- Determination of mortality rates of released alfonsino will be almost certainly not possible.
- Thus, tagging programmes of fish taken in commercial fishing will not be feasible
- Consideration should be given to using research vessels to recover alfonsino to determine if they can recover their trawl sufficient slowly to enable survival of alfonsino for tagging.



Southern Indian Ocean Deepsea Fishers Association
南インド洋深海漁業組合

CONSIDERATIONS IN THE POSSIBLE USE OF TAGS FOR RESEARCH ON ALFONSINO FISHERIES

February 2021

Summary Points

- Alfonsino rarely survive capture by trawl
- Determination of mortality rates of released alfonsino will be almost certainly not possible.
- Thus, tagging programmes of fish taken in commercial fishing will not be feasible
- Consideration should be given to using research vessels to recover alfonsino to determine if they can recover their trawl sufficiently slowly to enable survival of alfonsino for tagging.

1. INTRODUCTION

Fish tags are commonly used for two fisheries management purposes:

- i. For estimating population size through recapture studies: the incidence of the recovered tags can be used to estimate population size. An alternative to tagging is to mark fish in some manner, e.g., by clipping a fin or some other form of recognizable fish body mutilation that will provide an indication of the frequency of recaptures, and
- ii. For tracking the movement of populations through recovery of tagged individuals. Pop-up (PIT) tags that communicate by satellite are now available though their cost (up to \$1000 each) means that there usually are budget constraints on how many can be used.

Critically, both endeavours require that viable fish can be obtained for tagging and that their post-tagging mortality is either negligible/low or can be determined in the case of determining population size. Considerable literature exists on the process and practice of fish tagging. Our concern is whether alfonsino can be captured in a sufficiently viable state to survive being tagged and return to a normal behavioural mode.

2. FEASIBILITY OF TAGGING ALFONSINO

Alfonsino caught by benthic-pelagic trawling will usually have been stressed as a consequence of being pursued by the trawl net before capture. They will be subject to barometric stress as the net is retrieved from depths characteristically of 500 – 1200 m though the deeper value occurs much less frequently. Further, significant changes to the ambient temperature to which the alfonsino are acclimated are often associated with the recovery of the trawl from extreme depths. This adds to temperature stress to that which the fish are subject. In addition to these effects will be physical stress from fish being squeezed/crushed in the cod end as the trawl is recovered.

There is a relatively wide range of fish tags for different situations, but it is important that recovered tags are noticed during the operations of a factory trawler. As fish pass through processing equipment there should be reasonable confidence this would happen.

The likely method of tagging would use anchor tags (Figure 1. These are relatively inexpensive. Figure 2 shows an image of a tagging gun used to insert the T-tags.

Figure 1

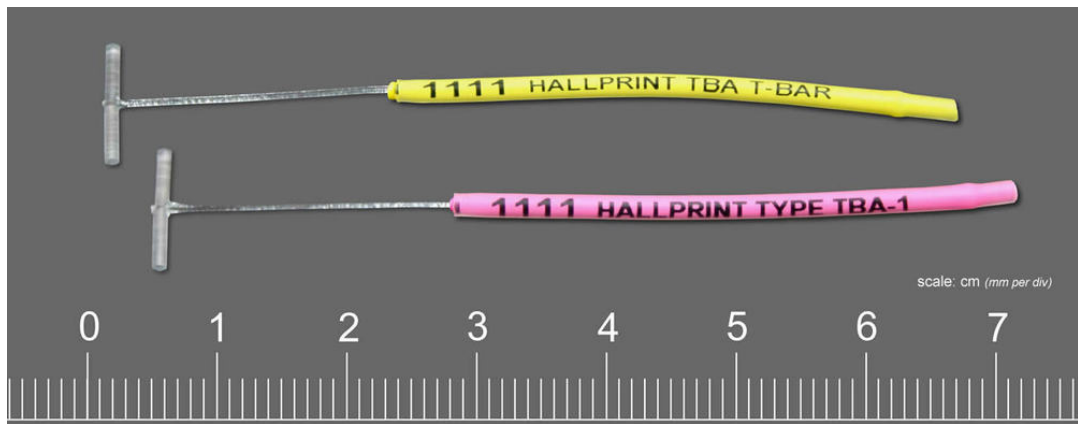


Figure 2

Tagging gun loaded to insert multiple tags



3. DISCUSSION AND RECOMMENDATION

The general view of sea-going personnel on SIODFA factory trawlers is that recovery of viable alfonfino for tagging is most unlikely – fish are dead/morbid when emptied from the trawl. .

One possibility would be to use a specialized research vessel, such as the R.V. Dr *Fridtjof Nansen* for the tagging operations. Using such a vessel would allow trawls of especially short duration that could be recovered very slowly to allow fish to acclimate to pressure and temperature affects. The gear might be kept in the sea until individual fish could be inspected to assess their vitality and, if promising, be tagged. However, such an attempt at first would clearly be experimental.