PROGRESS ON COLLECTION OF TISSUE SAMPLES FOR THE DNA ANALYSES OF THE YELLOWFIN TUNA STOCK STRUCTURE IN THE INDIAN OCEAN

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ABSTRACT

In this paper, the progress on the collection of tissue samples for the DNA analysis of yellowfin stock structure in the Indian Ocean is reviewed. The National Research Institute for Far Seas Fisheries (NRIFSF) of Japan has undertaken to investigate the genetic stock structure of Indian Ocean yellowfin tuna. Ten countries had agreed to supply tissue samples for this study and that samples might be available from another two or three countries. The preliminary results will be reported at the WPTT meeting in 2000.

INTRODUCTION

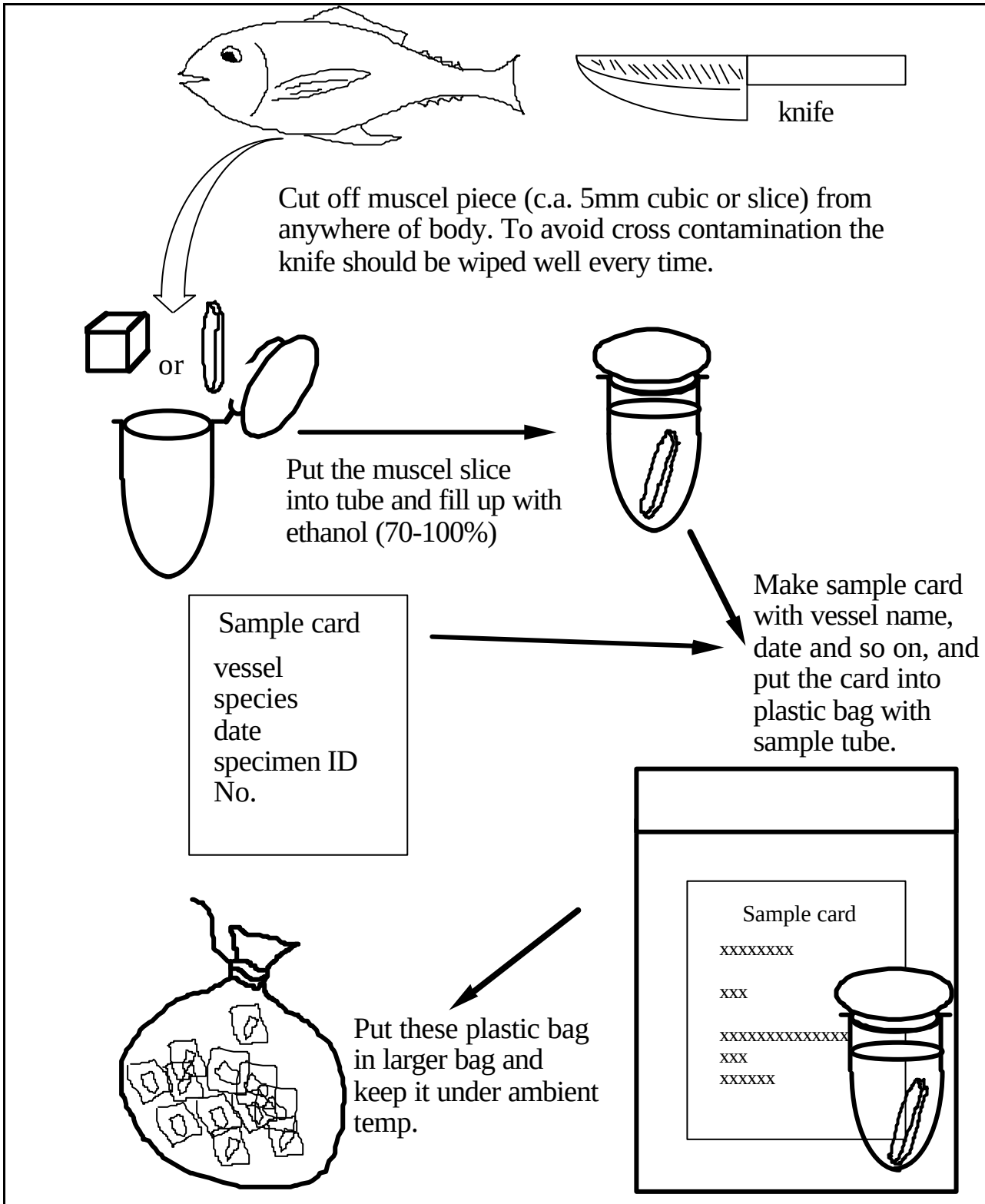
In the seventh expert consultation meeting of the Indian Ocean tuna held in Seychelles under the IOTC in 1998, 'genetic analyses' to study the stock structure of yellowfin tuna and bigeye tuna were recommended. Two Agencies proposed this study, which were National Research Institute of Far Seas Fisheries (NRIFSF) of Japan and Commonwealth Scientific Industrial and Research Organization (CSIRO) of Australia. After discussing this matter between these two Agencies, it was decided that NRIFSF will work on yellowfin tuna, while CSIRO on bigeye tuna. This document reports the progress of the sample collections and the future plan.

DATA COLLECTION

Table 1 lists names of country, Agncises, contact persons that agreed to cooperate to provide yellowfin tuna tissue samples to NRIFSF and Table 1 also shows the status of sample collections.

Country (alphabetical order)	Agency	Contact person	Samples have received OR to be provided by the end of October, 1999
France	Comité National des Pêches Maritimes et des Elevages Marins	Michel Goujon	Yes
India	Fisheries Survey of India	V. S. Somvanshi	Yes
Iran	Iranian Fisheries Research Organization	Farhad Kaymaram	?
Japan	Japan Marine Resources Research Center (JAMARC) through the Nippon-maru cruise	Ikame	Yes, but samples will be delivered in 2000 after the cruise is over.
Maldives	Marine Research Section (MRS)	Hafitz Charles Anderson	Probably OK : waiting for clearance from MRS.
Mauritius	Albion Fisheries Research Centre	Devanand Norungee	Yes
Re Union (France)	IFREMER, Delegation de la Reunion	Francios Rene Francois Poisson David Guyomard	Yes
Seychelles	Seychelles Fishing Authority	Rose-Marie Bargain	Yes
South Africa	Marine and coastal management	Marcel Krose	Yes (may delay)
Spain (at Seychelles)	Spanish Fisheries Representative in Seychelles,	Miguel Herrera	Yes
Sri Lanka	National Aquatic Resources Agency (NARA),	R.D.K.D. Amarasooriya	Yes
Thailand	Andaman Sea Fisheries Development Center (AFDEC)	Praulai Chantawong	Yes
Yemen	Marine Science & Recourses Centre	Hamba Saroor Al-Haj	No (due to unforeseen reason, samples can not be provided)

SAMPLING METHOD



Sampling scheme for collecting muscle tissue for DNA analysis

Fig. 1 shows the method how to collect the tisue and how to keep records and the following instruction have been given :

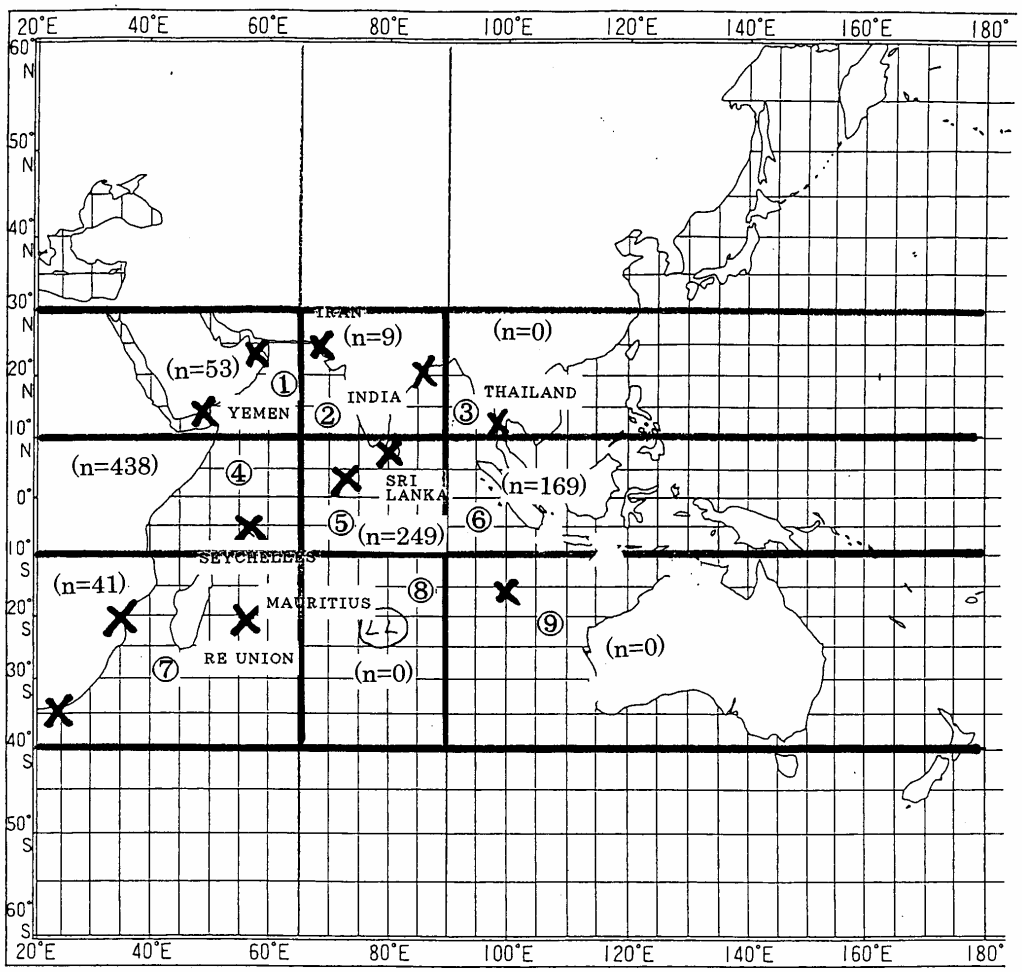
We require only a small amount of muscle piece (about 5 mm cubic or slice). We prefer to have samples from small size of fish not exceeding 60 cm in its fork length. The muscle tissue can be taken from anywhere of the fish body. We usually take a piece of meat from the core that the processors use to determine flesh quality. The sampling vials that we are sending have already been filled with the ethanol (70-100%). Once the tissue is in the ethanol solution, it can be kept and shipped at room temperature by normal air-mail.

We would like to have following information on the sampled fish are obtained (refer also to attached Figure 1 and Map 1): (a) please put sequential sample number on the cover (cap) of the vial, (b) make data sheet as appeared in the attached Figure 1. We prefer to have the data entered to Microsoft Excel and to have it in diskette, but the hand-written paper forms are also acceptable. Please include date, location (latitude and longitude in minutes level), boat name (or landing sight name), fork length, sex (if known) and remarks, (c) we would like to have 60 –81 individuals (samples) from each location. We define 9 locations (see Map 1). We will send one box containing 81 vials per location. If you think that you can cover more than 2 locations and can collect more samples in each location, let us know. We will send additional vials, (d) we need samples within a half year, hopefully by October, this year.

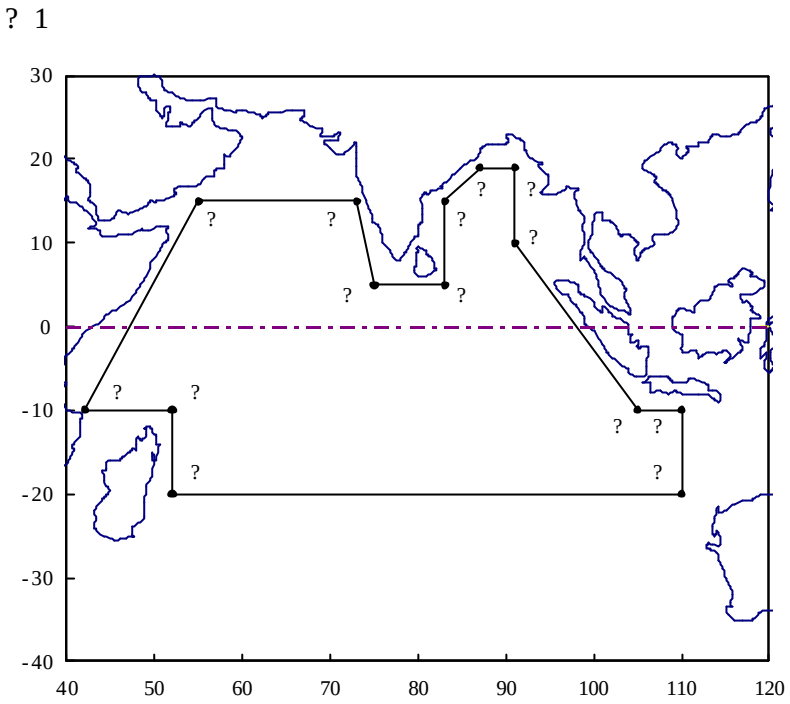
Map 1 9 sampling areas. Samples are expected to be obtained from the locations with X marks. In addition, samples from PS fishing grounds are also expected to be provided.

Note: Samples from Yemen will not be available. Samples from Iran are not yet confirmed. Nippon-maru (JAMARC) will cover the major PS fishng grounds in the eastern and eerstern Indian Ocean in the 1999/2000 cruise (see Map 2). Samples from LL will not be collected.

SAMPLING AREAS



Map 1 shows the sampling areas and Map 2 shows the area of the Nippon-maru (JMARAC) cruise for 1999/2000. missing



Map 2 Nippon-maru Cruise (JAMARC) in 1999/2000

Note: Experimental PS fishing will be conducted in the major PS fishing grounds in the western and eastern Indian Ocean within the border indicated in the map.

ANLYSES (FUTURE) AND REPORT

After we collect the sample tissues, we plan to analyze them at the genetic Lab in the National Research Institute of Far Seas Fisheries of Japan and plan to report results in the next tropical tuna working group meeting in 2000 (?). We plan to analysze three parts of DNA, i.e., microsatellite, mitcondoroia and intron that makes coding of protein structure. We will select the best parts that provide the realibale and accurate results.

ACKNOWLEDGEMET

We appreciate those who cooperate to collect and provide the sample tissues (listed in Table 1)