

STUDY ON BUILDING A TRACEABILITY SYSTEM FOR WHALE MEAT

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ABSTRACT

Whale meat has been one of traditional diets in Japan. However whaling is now prohibited except for the purpose of scientific research.

Therefore it is important to keep an eye on poaching and to make distribution routes clear to obtain an international credibility. Then it is highly required to build a pilot traceability system and test it immediately.

On the basis of this context, we made a study on building a traceability system for whale meat. This study will contribute to clamping down any illegal trades of whale meat, ensuring safety of foods and winning confidence by consumers.

This study is composed of following three studies. 1) Development of a technology, which makes it possible consumers to know the whale meat's history from its production through distribution by cellular phone. 2) Development of a technology, which makes it possible consumers to know whether the whale meat is lawful or not by cellular phone. 3) Development of a technology which makes it possible to prevent other species or poaching meat from mixing into, or to prevent a weight of whale meat from being manipulated during distribution. We developed these three basic systems by an examination with flatfish. As the next stage, we intend to examine whale meat traceability system in the field this year.

Keywords: traceability; distribution; cellular phone; marine products

1.INTRODUCTION

Whale meat has been one of traditional diets in Japan. However whaling is now prohibited except for the purpose of scientific research.

Therefore it is important to keep an eye on poaching and to make distribution routes clear to obtain an international credibility. Then it is highly required to build a pilot traceability system and test it immediately.

This research is aimed at securing legitimacy, safety of foods and relationship of mutual trust with consumer, and it is composed of developments of following technologies to make a whale meat tracability system.

- A technology which makes it possible consumers to know the whale meat's history from its production through distribution by cellular phone.(safety of food and trust by consumer)
- A technology which makes it possible consumers to know whether the whale meat is lawful or not by cellular phone. (Legitimacy)
- A technology which makes it possible to prevent other species or poaching meat from mixing into, or to prevent a weight of whale meat from being manipulated during distribution. (Safety of food and trust with consumer)

We will use the server of the FUTURE UNIVERSITY-HAKODATE(FUN), to execute the proof examination and prove the effectiveness of this tractability system.

The target at the first year is construction of this system. Therefore we will use only red meat which distribute by the frozen refrigeration.

2. System outline

This system has following features.

- Release of DNA information (Certification of displayed production area, proof of obedience, and facilitating safety.)
- DNA check and total weight check. (Exclusion of forgery, certification of displayed production area and proof of obedience.)
- Prevention of falsification when whale meat are subdivided in shop. (Facilitating safety and proof of obedience)
- Facile acquirement of information by reading QR codes on the products by cellular phone. (Consumers can easily confirm safeties of products.)
- Interactive information system by network
- Unitary management of data by a certain server.
- Easy handling of huge data by QR code and central control server.

This system is applicable for whale meats from both research whaling and occasional capture by set nets, and will contribute to a stable supply of fishery products, a preservation of fishery resources, and mixing prevention of import products and another areas.

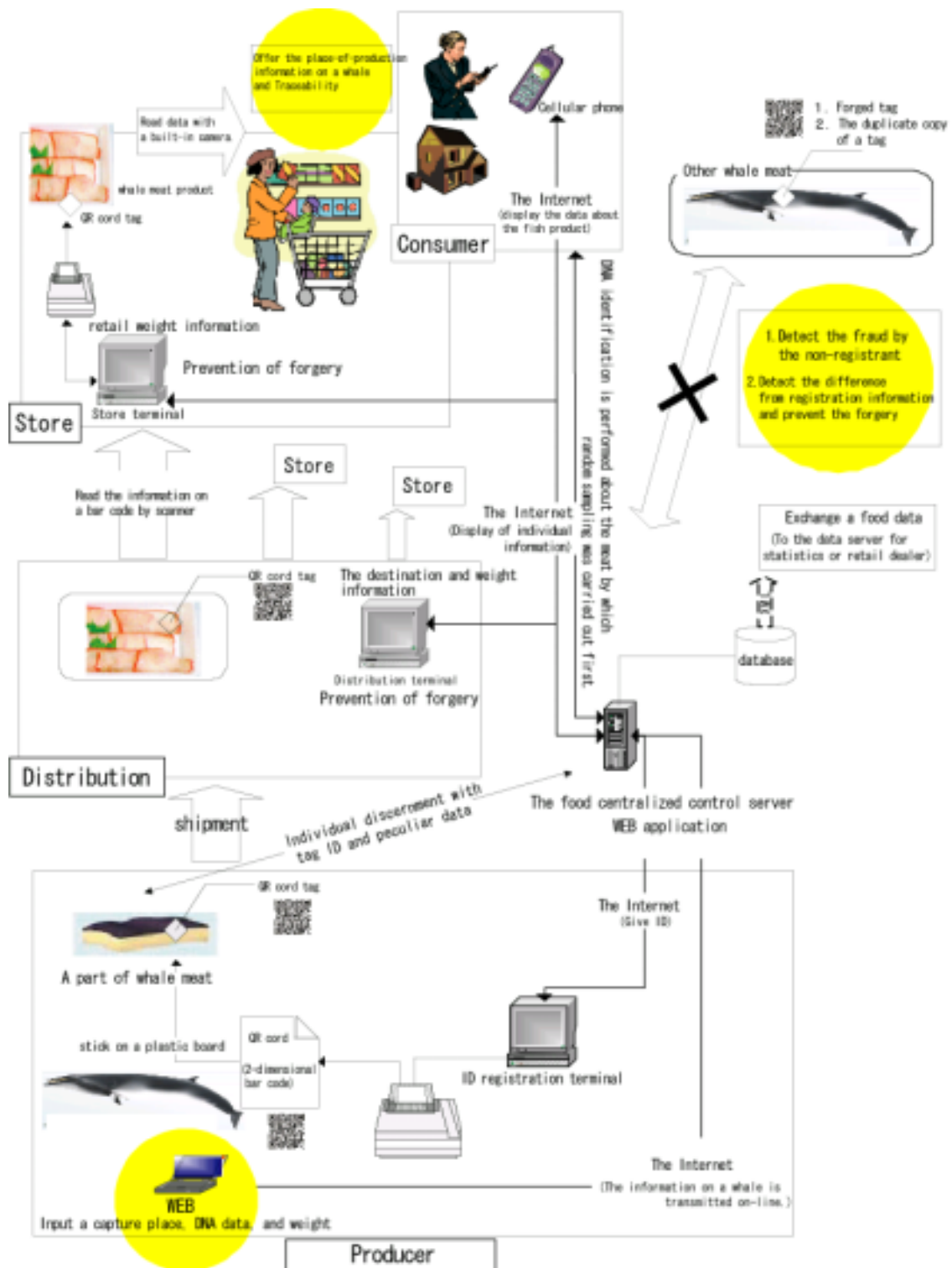


Fig. 1 The outline of the traceability system of a whale

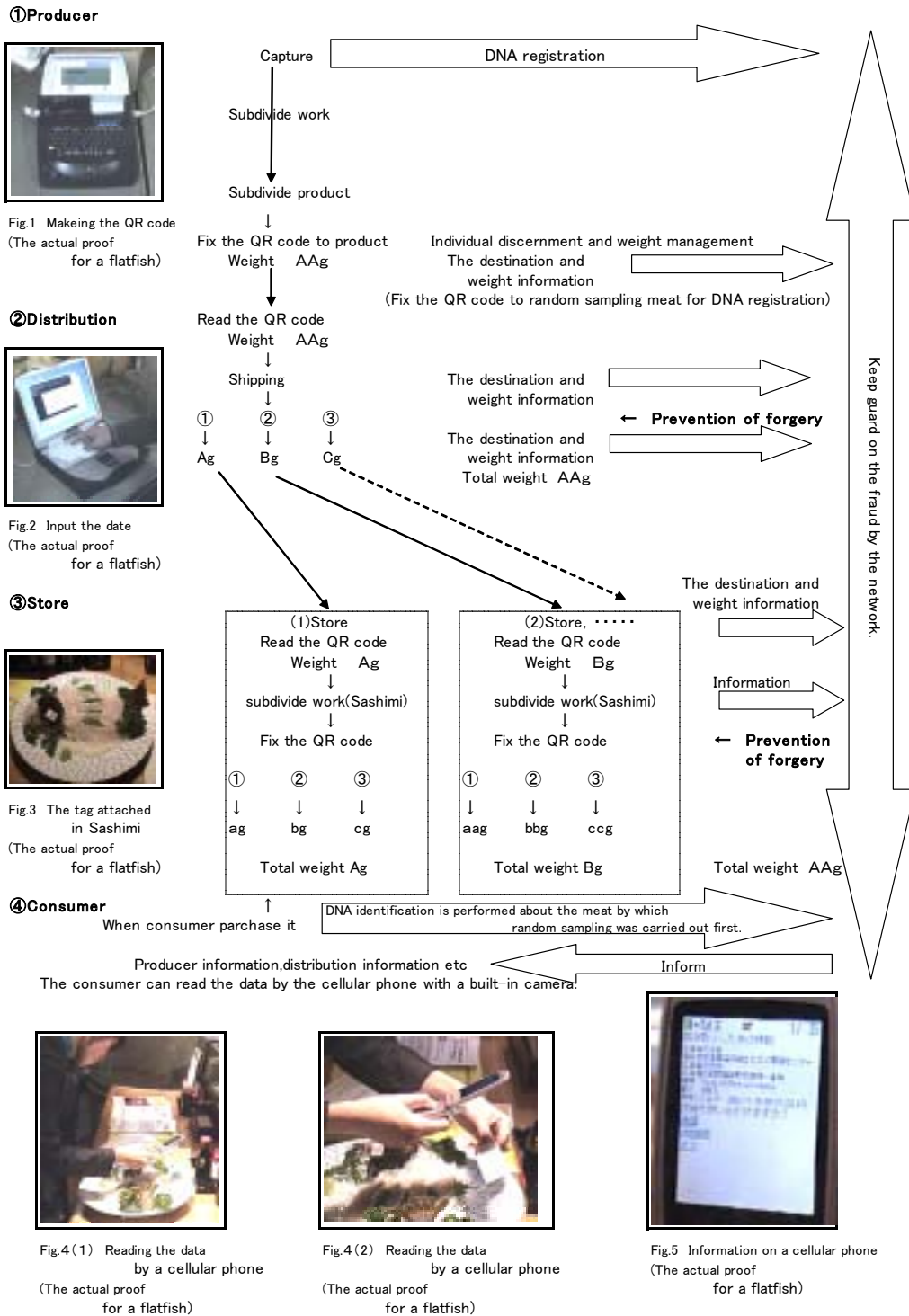


Fig.2 The image of the alteration prevention traceability system using IT

3. Advanced points of the system

This system has following advanced points.

- The information about subdivided meat's weight is cumulatively recorded on the QR code linked with basic data such as DNA information, which determined at just after capture.
- The DNA check by random sampling was implemented.
- The information disclosure system makes it possible for consumers to obtain product and distribution information directly by use of cellular phone.
- Online data management through server and verification procedure of peculiar index, weight of meat, make it possible to detect manipulations even when the meat is divided into smaller pieces.
- The simple system, WEB service on server and two dimension bar code, covers everything from tag to terminal.
- This is very cheap system, using only the Internet and cheap plastic tags.

4. Reliability of system

This system is considered to be reliable from following features.

- Very durable tag, which is made by heat transcript print on plastic board, is used.
- It is possible to draw information from QR code even if about 30% of tag are damaged.
- The falsification can be detected, since this system watches accordance of individual identification information (weight) and the QR code, even if it is subdivided in shop.
- ID issued from the central server ensures this system's security

5. Future application

We have developed these three systems using flatfish instead of whale meat.

In order to accomplish of the total system, it's expected to be applied to any foods, which tend to be forged, such as fishery products, meats and vegetables.

Moreover, in future, if oversea suppliers introduce the system and apply it to their export foods, then we could supply much safer import foods to our customers in Japan.