

NPAFC

Doc. 649

Rev. _____

**Proposed Internet Accessible Website for the Otolith Mark Database
of the NPAFC Working Group on Salmon Marking**

Beverly A. Agler

Alaska Department of Fish and Game
P.O. Box 25526
Juneau, Alaska 99821-5526

Peter T. Hagen
National Marine Fisheries Service
11305 Glacier Highway
Juneau, Alaska 99801-8626

Submitted to the

NORTH PACIFIC ANADROMOUS FISH COMMISSION

By

The United States Party

October 2002

This paper may be cited in the following manner:

Agler, B.A. and P.T. Hagen. 2002. Proposed internet accessible website for the otolith mark database of the NPAFC working group on salmon marking. (NPAFC Doc. 649) 6 p. Alaska Dept. Fish and Game, Juneau, Alaska. 99801

Proposed Internet Accessible Website for the Otolith Mark Database of the NPAFC Working Group on Salmon Marking

Beverly A. Agler¹ and Peter T. Hagen²

¹Mark, Tag, and Age Laboratory, Alaska Department of Fish and Game,
P.O. Box 25526, Juneau, Alaska 99821-5526

²National Marine Fisheries Service
11305 Glacier Highway
Juneau, Alaska 99801-8626

Abstract

Otolith marking is an important tool used to determine the origin of hatchery raised free-ranging salmon in high seas and coastal waters. The number of otolith-marked salmon released from hatcheries in NPAFC countries has increased annually since 1994. The NPAFC Working Group on Salmon Marking recommended that a web accessible otolith mark database be developed. We have developed a prototype web site that is accessible through an internal server housed at the Mark, Tag, and Age Laboratory of Alaska Department of Fish and Game, Juneau, Alaska (<http://146.63.252.116/>). This proposed web site is now available for members of the NPAFC Working Group on Salmon Marking to review and critique.

Introduction

Otolith marking has proven to be an effective tool to determine the hatchery origin of individual salmon. In Alaska, the primary use of thermal marking is to provide information about the contribution of hatchery fish, primarily pink, chum and sockeye salmon, to commercial and cost-recovery fisheries during the summer fishing season. All member nations of the NPAFC are employing this mass marking technique for salmon, as well as other modifications, such as dry marking (Rogatnykh et al. 2001) and strontium otolith marking (Schroder et al. 2001). The number of otolith marked salmon released from hatcheries has increased annually, reaching approximately one billion fish with nearly 150 otolith marks in 2000 (NPAFC Working Group on Salmon Marking 2001). Due to this increased number, duplication of marks is not uncommon. With this increased use of otolith marks by fishery managers and biologists over the entire North Pacific Ocean, an easily accessible database of otolith mark releases would facilitate a more effective use of this technology.

At the 1999 NPAFC Annual Meeting, the CSRS recommended that the secretariat consider the development of an Internet-accessible otolith mark database on the NPAFC web site in cooperation with the Working Group on Salmon Marking (WGSM). So far, this has not been possible, but the WGSM has continued to work towards developing such a database. To this end, the United States Delegation offered to develop a prototype database in cooperation with the Alaska Department of Fish and Game's Mark, Tag, and Age Lab. Such a database would greatly facilitate determination of otoliths marks and minimize the use of redundant patterns for the State of Alaska.

Proposed Otolith Mark Database

At the present time, the web site is housed on a server based in the Mark, Tag, and Age Lab, Alaska Department of Fish and Game. The web site does not have a domain name and is only accessible by using the IP address listed here.

<http://146.63.252.116/>

Figure 1 shows the current homepage of the prototype web site. It directs the reader to one of three sections. Section one contains information regarding otoliths in general, such as “What is an otolith?” and “What is thermal marking?” Section two contains information describing the activities of the WGSM, such as upcoming meetings, the purpose of the WGSM, and papers from the recent workshop sponsored by the WGSM about pink and chum salmon. Section three contains the Otolith Mark Database, which includes some basic queries to obtain data from the database.

Figure 2 is a graphical representation of the web site, showing in detail the relationship between the pages within each section.

Because this is a work in progress, we are presenting this paper to the WGSM to encourage its members to examine the website and the database and provide comments and suggestions. We already have received some comments and plan to add the following additions and changes:

1. Section One: General Information on Otoliths and Thermal Marking
This section is intended for people unfamiliar with otolith marking. The pages will be updated periodically but can also be used to direct people to other resources on the internet. For this section we intend to:
 - a. Add a page describing how to collect otoliths.
 - b. Add additional photographs of thermal marks.
 - c. Improve quality of drawings of otoliths and their location in the fish.
2. Section Two: Information on the NPAFC working group.
This section covers activities of the working group. It can contain information generated from the meetings and discussions. For this section we propose to:
 - a. Add the papers from the NPAFC Workshop on otolith salmonid marking
 - b. Remove the sections on meeting registration and submitting abstracts (this is probably not needed and was done as a class exercise).
 - c. Add other information the working group members would like to see.
3. Section Three: Access to the Database
The section could be the most heavily used. It is based on the data contained in the “OM database ##-#.xls” spreadsheets maintained by the Japanese party. Unfortunately the data is not consistent in some of the fields and as a result it is not possible to create complex queries or reports from the database. This particularly this applies to the code notion. Mr. Morihiko Kawana documented this in a memo to the working group members on February 19, 2001. For example both Russia and Canada use brackets ‘[]’ in the RBr code but not Japan or Alaska. In addition Washington marks are much different and don’t easily fit the RBr scheme.
Options are:

- a. Settle on a common RBr Code. Suggest following the notation in Hagen (1999) that was modified from the code in Munk and Geiger (1998) to allow more electronic friendly. (This will be difficult to be difficult to apply to Washington marks) or
- b. Apply the Hatch code notation, keeping the scheme as simple as possible so that it can be applied to all marks.
- c. Create a new field that contains the total number of rings in each mark. Thus allowing a simple search based on total ring count.

Other suggestions:

- d. Capitalization: Words either need to be all capitals.
- e. Photographs of each mark: Currently, only Alaska marks are represented. However other images can easily be linked. Tiff format is fine, and files names should be based on ID No or thermal mark ID if present.

There are a number of other things that can be done and these are just a few examples. Standardization is critical to accessing the data in a database form. We would be willing to do this, but we feel that we need permission of the WGSM to proceed. If this web site is acceptable to the WGSM, we will clean it up, standardize the database and continue to maintain it in its present form. Ideally, it would be added to the NPAFC website in the future.

References

- Hagen, P. 1999. A modeling approach to address the underlying structure and constraints of thermal mark codes and code notation. (NPAFC Doc. 395). 12 p. Alaska Dept. Fish and Game, Juneau Alaska.
- Munk, K.M. and Geiger, H.J. 1998. Thermal marking of otoliths: the "RBr" coding structure of thermal marks. (NPAFC Doc. 367). 19 p. Alaska Dept. of Fish and Game, Juneau Alaska.
- NPAFC Working Group on Salmon Marking. 2001. Report on the development of Internet accessible otolith mark database. (NPAFC Doc. 577). 6 p.
- Rogatnykh, A., E. Akinicheva, and B. Safronenkov. 2001. The dry method of otolith mass marking. NPAFC Tech. Rep. 3: 3-5.
- Schroder, S.L., E.C. Volk, and P. Hagen. 2001. Marking salmonids with strontium chloride at various life history stages. NPAFC Tech. Rep. 3: 9-10.

Figure 1. Current homepage of prototype Salmon Marking Working website

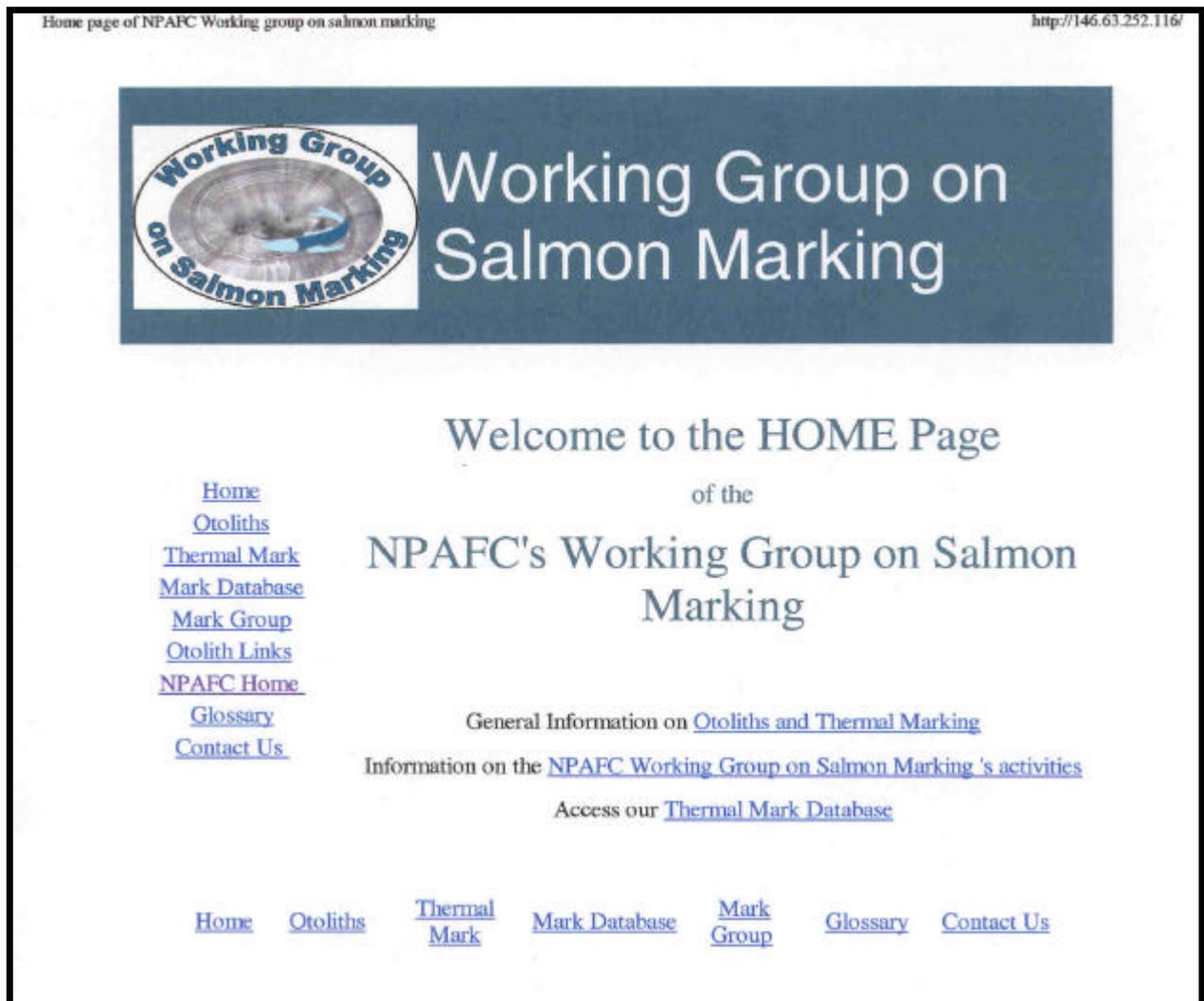


Figure 2. Is a graphical representation of the web site layout,

