**Ageing Workshop Rapporteur Notes- JAN 31, 2023**

**11AM – 12:30 PM**

Q1 for Julie from Greg Puncher:

Q: Why was Image J used as a challenge

A: ImageJ is used routinely for measuring. Calibration can be incorrect, so scale bar on image is incorrect, therefore measurements are not correct.

ImageJ is super useful, but calibration file is important and must be right

Q2 for Julie from Greg Puncher:

Q: How does soaking time impact otolith reading

A: For Plaice, if soaked in water overnight, for short period of time, or for 2 hours, the otoliths looks very different. Soaking otoliths in water too long cause them to be very translucent. They did a study at DTU and found optimal soaking time in water for Plaice otoliths was 2 hours.

There is also the same issues for Atlantic Herring. If soaked too long in water they become very translucent, so when soaking and reading a tray one must be careful to be consistent for soaking time to have consistency in reading.

Q3 for Julie from Aaron Adamack:

Q: Where is the best place to source plastic film to store Herring otoliths

A: No one best place or method. Need to work out best method for long term storage of Herring otoliths, considering cost efficiency and space efficiency.

11:10 AM Daniel Ricard Presentation of SOP MMF Gulf Region Document

Main points:

-Collecting age structure

-Catalogue with associated meta-data

-Preparation – many methods

-Storage -Ideally, controlled, well organized, in conditions that will not deteriote quality – reality scattered, stored haphardly and not always

-Inventory- available in OpenData- if not in Open Data and/or DM Apps you should add them there)

Regional Homework- Dan wants to know how we want the data summarized, what metrics we would like to see. E.g. # of otoliths across Canada.

11:25 Questions and Comments Spawned from Dan’s talk:

Q1 for Dan from Greg Puncher:

Q/comments: Greg has background in genectics, says storing otoliths in resin would eliminate the use of genetic analysis on otoliths. He has done genetic analysis on otoliths with bits of blood left at SABS, and the only genetic results he got back only showed bacteria that eat fish flesh decay. So he says its very hard to get good genetic readings from archived otoliths.

Julie responded saying, for their Cod otoliths, they were just stored in brown envelopes, and it seemed to work well.

Stephen W from Pacific Region: They clean their otoliths very well because they use break and burn. They said because they are very clean there is no possibility for genetic analyses on their Salmon otoliths. They clean rigorously and will be storing dry to preserve best for re-ageing.

Aaron Adamack: Is experimenting on proteonomics of otoliths.

Dan mentioned: There seems to be a tradeoff, store to preserve the otoliths for ageing doesn’t make them useful for genetics, so maybe take material needed for genetics before cleaning.

Dan Mentioned: Best practice would not to store long term in Glycerin, storing long term in glycerin cause super saturation and compromises readability.

Julie mentioned: Clean otoliths are essential when taking images.

Stephen said they used to store in glycerin to preserve trnasulecense. They then shifted to break and burn and still used glycerin. But now they store dry and say its much better,

Tracy from Freshwater Institute mentioned it’s by far better to store dry, especially for people who do otolith microchemistry and otolith isotopes. The otoliths need to be cleaned well and dried to be best for ageing, isotopes and microchemistry.

11:40 AM Tracy Loewen and Rick Wastle from Freshwater Institute Talk:

Title: Otolith microchemistry, difficult-to-age, marine species, element marking in otoliths

FWI Otolith Age Estimation Lab

-Estimate ages for 32 species including Arctic Charr, Dolly Varden Charr, Lake Trout, Greenland Halibut, Redfish and Arctic Cod.

Otolith Microchemistry to support Age estimation and Validation

-SR useful for identifying migrations in diadromous species like Arctic Charr.

-Annular Zn markers that align with growth rings on otoliths.

Dan Asks: How much does it cost per sample to conduct elemental analysis on otoliths

-At EIL at UWaterloo you can do Strontinum and elemental microchemistry its cheaper, especially if you do it yourself.

When relying on University lab to do work can cost 10s to 1000s of dollars per day.

Presentation from Rick Wastle, senior fish ageing lab technician in Winnipeg

Title: A new method for Estimating Ages of Greenland Halibut – the Left Otolith Bake and Longitudinal Thin Section Method

* Methods used previously
* Many methods have been attempted at DFO Winnipeg
* Can be very difficult to read, some have nice distinguished rings, others are not clear
* Used Strontium Chloride (SrCl) marking to try an validate growth rings
* Concluded: i)some validation evidence supporting sectioning the left otolith buldge ii) Longitudinal section plane has significant advantages

12:30 Questions/Discussions for Tracy and Rick:

No time for questions as we are late for lunch.