

Every year, the Thermal Mark Lab examines samples of the most recently marked fish from Alaska hatcheries. This allows us to assess the thermal marks that were produced and add them to our electronic repository of mark data (<http://www.taglab.org/OTO/reports/VoucherSummary.asp>). When these fish return as adults and are sampled for commercial fishery or research purposes, the recovered marks are compared to the online library of voucher images to identify the thermal mark, brood year, and hatchery of origin.

Guidelines for hatcheries preparing to submit their vouchers are provided below. If you have any questions, please contact Bev Agler at bev.agler@alaska.gov , or (907) 465-3498.

We can supply storage bottles and labels for sampling each year. Using our labels ensures that each sample includes the information we need, and we will return all bottles to each hatchery after processing so that they can be reused each year. We use 250 mL Nalgene wide-mouth bottles purchased from VWR (catalog number is 16125-060) to store these voucher samples. Please let us know at least a month or two prior to sampling if you require bottles so that we can order them for you.

If you use your own labels we need the following data per sample submission:

- Sample date
- Species
- **Intended Thermal Mark**
- Unique Information applicable to each sample: Lot, Incubator, Raceway, Tank, etc. E.g. whatever data applies that distinguishes mark groups prior to ponding.
- Brood Year
- Release Site(s)
- Beginning CTU (cumulative thermal units)
- Ending CTU
- Ambient Temperature
- Chilled/Heated Temperature
- Marking Duration (per heating/chilling cycle)
- Information regarding transport of fish after marking.

Transportation can often shock fish into laying down otolith rings which we can use as a secondary mark characteristic to aid in mark identification.

Select 40 – 50 fish from each lot. Please do not mix fish from different lots or mark groups into a single bottle. This prevents us from identifying possible errors or accidents that produce a thermal mark pattern that was different from the intended mark.

We do not need a sample from each lot you produce. However, we do need to ensure we get a representative sample of every thermal mark produced. So here is the breakdown: if you have 10 OR FEWER lots for a given thermal mark, we need samples from all lots. If you produce more than 10 lots for a given thermal mark, we would need ONE ADDITIONAL SAMPLE for every additional five lots for that mark. (It doesn't matter which of the five additional lots you choose.)

10 lots = 10 samples
10-15 lots = 11 samples
15-20 lots = 12 samples
20-25 lots = 13 samples
25-30 lots = 14 samples

Each sample bottle should contain 40 – 50 fry immersed in a solution of **90%** Ethyl Alcohol for preservation. DO NOT use formalin or isopropyl alcohol. The ratio of ethanol to fish should be approximately 2 to 1 by volume. Let the fish soak in the preservative for at least 5 days. If the

ethanol becomes extremely discolored during this time frame, decant it and add a fresh solution. After this preservation period, send the samples to ADFG's Mark, Tag, and Age Laboratory. However, do not ship the bottles while they are full of alcohol, the postal service has classified ethyl alcohol as a hazardous substance because of its flammable nature. Decant the alcohol after five days, leaving the alcohol-soaked fry in the bottle. Immediately and tightly cap the bottles and ship them to us immediately by 2nd day air.

You will receive an email notification when vouchers are received, and another email when the mark evaluation is complete. The latter email will include a link to your voucher report, complete with pictures of the mark! If you do not receive these emails, please let us know and we will make sure the correct email address is in our directory.

Our goal is to process all voucher samples before the beginning of the commercial fishery season which typically starts on June 15. After that date, we do not have the time or resources to continue thermal mark evaluations for the current brood year. It is important we receive samples before this time so that we can provide feedback to the hatcheries prior to the next marking cycle. Potential problems can be addressed and marking protocols can be improved.

Consequently, we must receive all hatchery vouchers as soon as possible after ponding. If you can send us your vouchers prior to ponding, the Mark Lab will greatly appreciate your extra effort.