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Sampling artisanal fisheries

Obtaining representative samples of the catches from a small fishery (total catch number of less than a few thousand fish) that is practiced by a modest number of individuals (60 recreational gillnet fishermen, 9 professional fishermen) who fish over a moderate sized area (the islands of St. Pierre et Miquelon) and over an extended period (3 months?) is challenging.

The sampling efforts at SPM have been focused on sampling primarily the catches of professional fishermen as these are made available to the markets in SPM. It has proven more difficult to obtain samples from the recreational fishery which is practiced by a larger number of individuals but for which the total catch on a given day is much smaller.

To address the challenges of sampling these types of fisheries, sampling efforts of the past by the scientific personnel in SPM, could be enhanced by soliciting the participation from the fishermen directly to sample their catches.

France (on behalf of SPM) has indicated that logbooks will be provided to the recreational and professional fishermen to record catch and effort data. Requesting a modest amount of additional information from the fishermen will provide important biological information to assist in the assessment of the fishery and in the development of appropriate management advice.

In addition to the information already requested in logbooks, the additional information requested and the corresponding effort required from the fishermen can be prioritized.

- 1) Date, location of capture, effort, number of small salmon (< 63 cm fork length, or < 2 kg), number of large salmon (> = 63 cm fork length, or > 2 kg) should be the minimum information provided in the logbook

Additional biological data recorded for each fish in order of priority and for increasing effort of individual fishermen:

- 2) Length of fish caught : cm (measure fork length as per figure)
- 3) Weight of fish (if possible) (kg): whole weight kg
Gutted weight kg
- 4) Sex of fish: male female Not examined
- 5) Samples of scales to determine river age and sea age and spawning history.

Scales (between 10 and 20) should be collected from the standard sampling location as shown in the diagram. The scales from an individual fish would be placed in one of the scale envelope which could be provided with the logbook. Information to record on the envelope would include the date, length

of fish (as recorded in the logbook) to associate the scale sample with the more detailed information recorded in the logbook. The envelope and scale samples should be allowed to dry quickly, kept dry, and returned to the scientific personnel at the end of the fishing season.

- 6) Genetic material could possibly be extracted from scale samples which are adequately collected and stored (dry). However, tissue samples obtained from a small piece of fin and stored in alcohol is the ideal sample for conducting genetic analyses to identify the region or river of origin. Collecting such samples is more involved and is likely best conducted through dedicated sampling by scientific personnel, as has been done in the past. To obtain a representative sample of the catch from the fishery will likely require the use of scales provided submitted by individual of their catches.
- 7) Yet more detailed sampling of the catch including stomachs for analysis of prey, samples for disease, parasites and other tissues for research and monitoring would need to be conducted by the scientific personnel. Guidance on these methods could be shared by NAC parties to scientific personnel.

Canada and US offer to assist the scientific personnel in SPM to interpret the scale samples and to conduct the genetic analyses to identify the region and/or river of origin of fish in the catch. An extensive database of reference rivers has been compiled for North America and genetic analyses could be conducted at the Fisheries and Oceans Canada institute in St. John's, Newfoundland (Dr. Ian Bradbury is the scientific contact for this). Verification of interpretation of ages could be performed by a number of laboratories in Canada, including by science personnel from the Ministère du Développement Durable Environnement Faunes et Parcs (province of Quebec) following on the exchange that took place on that topic between science personnel from SPM and Ms. Denise Deschamps in 2012, or DFO laboratories in St. John's Newfoundland or Moncton, New Brunswick. All these analyses which Canada and US can provide in support of the sampling program at SPM would in return be provided to the scientific personnel in SPM. The sharing of the information from SPM to the ICES Working Group on North Atlantic Salmon has been greatly appreciated.