

## **Annex 3: Technical Minutes**

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### **Working Group on Baltic Salmon and Trout (WGBAST)**

**30 April – 3 May 2007**

#### **Participants:**

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#### **1. General comments**

The Bayesian approach was discussed. Maybe it would be appropriate to have a special workshop, theme session, or mini-symposium at some time to consider Bayesian approaches in salmon assessment work.

The wg reacted on last years Tech Min about given a table of commercial catch by country and its utilisation of quota.

If the wg want the reader to see trends it is generally best to show these in figures and in tables; for instance time series of carrying capacity (annual updates).

The chairs of the WGs raised issues with the aim and content of the stock annexes. The terminology is slightly confusing: some use the term “quality handbook” while others use the term “stock annex”. The terms can be both be used. The more permanent issues of an assessment can be kept in a separate stock annex and the time-series and results of analysis are to be kept in the wg report. The stock annex should basically document all the background information and the methods description that are needed for a full understanding of the assessment results but for which there is no need to repeat this every year in the WG report. Creating the stock annexes is a big job and can probably only be done inter-sessionally. The template for the stock annex is mainly written for “traditional” fish stock assessments, but can be slightly modified to accommodate the salmon assessments. For the Bayesian assessment of Baltic Salmon, the stock annex should contain a description of the Bayesian methodology and the specific application to Baltic Salmon. It can still contain references to published papers, but the main assumptions should be documented in the stock annex.

#### **2. Fisheries data**

The expert best guess of discards and unreported landings were used and this was discussed a bit. This is based on some data and on some judgement. Unreported catch is partly recreational fishery and partly from commercial fishery. It is difficult to trace the basis for the estimation from the report and how much is based on data and how much comes from expert opinions. This is difficult to justify to the outside world. More details on this would be useful. Because of the amount of discards and unreporting this is important to elaborate on. However, it is appreciated that some data are confidential and sensitive. If these data are revealed the sources of the information might dry out, but we need to find a way to document how much is related to guesses and how much comes from observations.

The salmon reported as sea trout have been corrected for in the salmon catches, but not in the sea trout catch data in the report.

Sec 2.3. The 10-30% given does not correspond to the table 2.1.1. (CORRECTED in the WG report after the RG meeting)

Polish effort data showed up during the wg meeting to be somewhat incorrect (see eg fig 2.4.1), and the wg was aware of that. This had implication for the assessment. A sensitivity analysis was done before the WG meeting and it showed that the old and new Polish data on effort had small effects on carrying capacity estimates. During the wg meeting the Polish came with new data. The wg is hopeful, that next year the Polish effort data will be finally correct.

Sampling activity for discards should be represented in a table or otherwise in the report.

The wg should follow the potential impact of changes in seal population and fishing methods and how these changes will affect the models used for the assessment.

#### **River data.**

River flow and its relation to success of electro-fishing would be useful to include in next years report. Maybe expand the models used with environmental data like river flow.

Previous year's smolt production from assessment area 5 have been dropped due to lack of documentation on methods used and basic data sampled. This had the effect that the trend of the wild smolt production in assessment area 5 is not going down over time. The wg report text is not clear on this issue. (CORRECTED in the WG report after the RG meeting)

Regarding M74, it was not so clear in the wg report what was new and what was old knowledge. Some of the old background reports could go into some other documents than the wg report (quality handbook).

Present management measures and other factors influencing salmon fishery.

Timing of the opening of the fishery along the Finnish coast and the annual variation in run timing was analysed by the wg. This was welcomed. Table 4.2.3.4 is missing from the wg report (it was noted lateron that it was simply a wrong reference it should have been to Figure 4.2.4.3). (CORRECTED in the WG report after the RG meeting)

#### **Main basin salmon.**

The information on fecundity was limited for the determination of the prior in the model. It would be useful to get more data on fecundity from wild salmon.

The 2005-2006 salmon smolt estimates might be an under-estimate and the 2007-2008 over-estimates due to dry or flooding conditions in the rivers and its influence on electro-fishing.

The S-R and the M74 correction is done by revising the SSB, but it might be that spawning areas are in some rivers and at some stocks sizes the limiting factor. And if so it might be better to correct the smolt numbers or maybe both.

Carrying capacities are updated each year and the wg wants ACFM to ask whether they prefer fixed values. In the light of a revision of the Salmon Action Plan the wg felt that it was appropriate the let it be dynamic. This might be resolved with the managers.

A flexible model for carrying capacity can still be used in modelling as today and then the final results evaluated against fixed threshold values used as reference points.

The WGNAS had suggested that a 25% increase in returning salmon compared to a baseline (some selected years) in USA was set by the wg, and then later on adopted by NASCO. Maybe this approach can be used in the Baltic: use a good baseline period for carrying capacity and suggest this to the Baltic managers.

The Baltic RAC has suggested a new SAP (Salmon Action Plan) to EC a few weeks ago, but ICES have not received any specific request from the EC.

The smolt survival has decreased over the last decade and is now very low. This knowledge is based on tagging data of wild smolts from Torne and Simojoki, and the tagging data of reared smolts from the Finnish stocking. The reason is unknown. Tag returns are very low and captures and returns of grilse are small as well. The Polish tag return data looks very strange with a sudden drop in 2001 – this should be explored further.

There are 5-10% repeat spawners, but this is not stated in the report. Amount of repeat spawners seem to be a strong and clear indicator for exploitation level.

Swedish tagging data from reared fish were available from the beginning of this year, but time did not allow for processing the data in time for the wg meeting.

It would be a good idea to try different priors and especially less informative priors regarding carrying capacity of the unit 4 rivers. This sensitivity approach would be useful to do.

Stock projections are made for 2007-2016. The smolt survival is assumed to return to the mean past values except for autocorrelation. This might be claimed to give an optimistic picture of the situation. It is of course difficult to decide what to assume for the future when there is a trend in the time series – will this trend continue, stay constant or increase. It was agreed that the “stay constant” low assumption should be selected, but time did not allow for the run. It should be mentioned that work is in progress and the results should this time only be given in a more general form in the ACFM summary.

A graph with future effort (Table 4.2.1) would be useful to include in next years wg report.

Reference points. MSY seem to give about the 50% of the potential salmon production - maybe somewhat higher for small southern rivers. This might be related to the use of B&H model and not the Ricker model which for the pacific salmon and for Northeast Atlantic salmon has been appropriate. However, for Baltic salmon their life history is such that a Ricker curve is not as appropriate as a B&H curve (see e.g Braanstroem and Sumpter, Proc Soc. B 272, 2065-2072, 2005). It was concluded that approach by the wg was acceptable for the time, but this should be looked into further as it might have large implications for the estimated level of smolt production potential.

Relationship between harvest rate and effort. Some graphs to show the relationship will be appreciated.

Some time series are longer than the data used in the current analysis and it was suggested that the Bayesian approach might also be applied using older data. Such work has started on river data. There are hatchery data, but no electro-fishing data. Effort data does not exist very far back in time, but maybe catch data can be used.

Terminology used is a bit un-precise. For instance smolt production capacity and carrying capacity seem to be the same. Some uniformity could be sought.

It is not always easy to see what the data input to the model is.

Who can run the model. The model software is on individual people PC's. There is a need for a central copy in ICES. It was agreed to put the model on the ICES SharePoint system. Who is responsible for the software and where is the documentation of the software, are questions which needs to be answered.

Why is assessment 5 and 6 not included in the modelling or rather treated separately. There are some tagging data, but much less data than in the other areas. The tagging data from

southern Baltic countries are not worked up yet. ICES encourage further development in that area.

It was asked whether the model was used to find out where to put research effort on data improvement. There are problems with less and less tagging data. The model might be used to argue for better data collection for instance in the DCR framework. There seem to be a lot of potential to use the model to find out where to invest in more collecting more data.

### **Gulf of Finland.**

Figure 6.7.1 needs to be updated as it seems to be from last year. (CORRECTED in the WG report after the RG meeting)

Smolt trapping only in one river, but lately one more river is covered. It is a problem to distinguish reared and wild smolt and it might be an idea to tag reared fish in order to be able to distinguish wild and reared.

If river flow is a key parameter for the stocks why not report this information in the wg report. This might be useful to have for several reasons: potential smolt production by year, for S-R relationship, for parr production areas, maybe deliberately manage river flow for improve production of salmon etc.

Native stocks for stocking could be suggested to be gradually replacing stocking with foreign stock to the extent native stocks becomes hopefully more and more available with time.

### **Sea Trout.**

The catch statistics for sea trout are suspected to be “contaminated” with salmon. A split into off shore and inshore fishery statistics might be useful. There is some future work planned on this.

Finland is missing in Table 7.2.1.4. and 7.2.1.6. (Corrected in the WG report after the RG meeting)

Table 7.2.1.2 is not revised to follow the format of the Finnish national report. (CORRECTED in the WG report after the RG meeting)

The classification in table 7.2.1.3 is based mainly on electro-fishing and in a few cases smolt production. The table was greatly appreciated by the RG.

There seems to be a lot of more information regarding smolt potential and present smolt production available than it appears from the report. It is difficult to see what are guess and what is well supported by data. A better description of this would be useful. And what methods were used to obtain the data.

There was a workshop on sea trout issues and ICES would have appreciated information on the results of this in the wg report.

It was mentioned that the Danish sea trout management is a success and it might be useful to include case stories like this in the report to illustrate what can be done to improve the stock situation. Especially for sea trout where exchange of good practise is more important than management of international fishery, as sea trout are quite local.

Maybe in the table 7.2.1.5 include a column with “uncertain” so that all countries can be included and that development over years can be seen.

The tables of parr densities are quite heterogenous and more standardisation is needed. The lay out of table 7.2.2.1 might be useful. Sampling intensity might also be reported maybe in a separate table.

Table 7.4.1 and other tables with salmon tagging data have been given two places in the report and should not be included under the trout sections. (CORRECTED in the WG report after the RG meeting)

A display of the poor sea trout situation is not very clear from the report. The wg is encouraged to consider how this could be better displayed in the report. A table with a summary of the status of the sea trout would be useful. Maybe catch statistics far back in time to the 1950s and 1960s, maybe index rivers or fisheries. The perception that the stocks are very depleted must be based on some data and there might be ways of presenting this more clearly.

Post smolt survival has been low and this is presented in section 8. This should be included in relevant stock sections.

### **Section 8. Tagging.**

Tagging information are more relevant in the respective stock sections. The wg should consider moving them to the relevant section. This might eliminated the need for a separate section on tagging in the report.

The Polish salmon tag return rate dropped suddenly from 2000 to 2001(Figure 8.1.5) and has been low since. This seems to be unexplainable at the moment.

Tag reporting rates might be more looked at to evaluate how the basic data can be improved.

Section 9. Data and information needs.

Include next time the issue of a link between the model used and the data needs and possible improvements.