

# Independent Economic Analysis Board Meeting Notes

March 7, 2013

| Members Present | Members Absent | Guests      |
|-----------------|----------------|-------------|
| Roger Mann      | Dan Huppert    | Tony Grover |
| Bill Jaeger     |                |             |
| Noelwah Netusil |                |             |
| JunJie Wu       |                |             |
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## 1. *Greetings and Introductions.*

Chair Roger Mann welcomed everyone to today's meeting of the Independent Economic Analysis Board, held March 7, 2013. The meeting was conducted by telephone. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with questions or comments about these notes should contact Tony Grover at 503-222-5161.

Mann led a review of today's agenda. The minutes from the IEAB's December meeting were amended and approved.

## 2. *Discussion of Fish Tagging Economics Scope and FTF.*

Mann said Jaeger has continued to work on the fish tagging economics model since the last IEAB meeting. Jaeger said the model is now operational; however, there are still a couple of significant components that are in the process of being connected. The model should be functional within the next week or two. It has been a very interesting, challenging and time-consuming process, Jaeger said. He added that he has been attending the monthly Fish Tagging Forum meetings in Portland, noting that, if the IEAB had been tasked with this analysis at a time when the FTF was not in session, it would have been a nearly-impossible task. There is an enormous amount of information available, and becoming an expert in a relatively short time has been a significant challenge, he said – there are so many variables to absorb in order to ask the right questions and incorporate the answers into the model.

One of the key questions is what to model at a high degree of specificity, and what information can be aggregated, Jaeger continued. He said he had sent a description of the model to the other IEAB members late last night; Jaeger

provided an overview of the model parameters: the various tagging technologies available and their costs per fish tagged and recovered, the geographic regions modeled, smolt-to-adult returns, numbers of fish tagged in order to achieve the desired sampling rate, and other factors. He noted that transportation is one of the final variable components that still must be factored into the model.

The group devoted a few minutes of review to this document. Among the highlights of this discussion:

- Grover complimented Jaeger on the clarity of his model description, noting that it should be especially useful for non-tagging experts, including Council members.
- Jaeger noted that one of the most significant remaining issues is developing viable estimates of cost per fish recovered; he said help from the other IEAB members in developing these estimates would be very helpful. Mann said he would be willing to help with developing these cost estimates
- Jaeger said the model should begin to yield preliminary results within a week and a half, but more definitive results will take somewhat longer.
- Mann said it is his hope that the model will ultimately yield long-run annualized costs for each of the available fish tagging technologies. Jaeger said this is one of his goals.
- Wu suggested that a summary of the key management questions the various tagging technologies are employed to answer should be placed prominently at the beginning of the report on the model results; Jaeger agreed.
- In response to a question from Netusil, Jaeger described the various sources of information he has used to estimate smolt and adult survival rates.

Mann asked whether the model will be able to assess the cost effectiveness of various available tagging technologies in answering the key management questions, or whether there are some questions that cannot be answered using available tagging technologies. Reconstructing survival rates and productivity is a part of so many management questions, Jaeger replied; if there is any area where the model may not be able to answer a key management question, it may be the effects of habitat restoration. If this model is well-received, and can characterize a large number of the central management questions, then there may be some discussion of whether or not additional questions can be programmed in, related to tagging technologies and cost.

Mann asked whether the model will be able to overcome intra-year variability, in terms of in-river and ocean conditions and significant intra-year variations in survival. Are there minimum numbers of detections that have to be made in a year in order for the model to be effective, or will you simply have to average?

Mann asked. Jaeger replied that it may be possible to program a variation of the model to take bad years into account. He added that he is planning to explore ocean harvest targets by “strata” and species, and how those targets should appropriately be incorporated into the model. In response to another question, Jaeger said the model will yield higher resolution than simply survival by ESU.

Mann asked about the budget for this task; Jaeger said he is already significantly over the \$25,000 budget allocated for his role in this task. Mann said he is the only other IEAB member who has spent significant time on this task. It was agreed that Jaeger, Mann and Grover will work together to reconcile and refine the budget for this task.

The discussion turned to the timing for this task; Grover said packet day for the Fish and Wildlife Committee’s May meeting is April 30. If we want to influence the Council’s decision-making, that’s when this work needs to be done, Grover said, adding that he has already begun to write up his tagging recommendations to the committee. The committee members may well have follow-up questions, necessitating additional analysis, Grover said; at this point, it could go either way.

Jaeger reiterated that the model should be fully operational, and producing preliminary runs, by the end of March. He added that it is possible that, once the preliminary results are available, it may be necessary to seek additional information in order to refine the model further, in which case it is possible that the report submitted to the Fish and Wildlife Committee on April 30 may cover only preliminary results. Mann noted that it will be very important to correctly qualify the report when presenting it to the Fish and Wildlife Committee and the Council; Jaeger agreed, noting that the concept of introducing economic analysis to the fish tagging equation is, as the IEAB is fully aware, politically sensitive. Grover noted that the FTF process is just about to the point that those who view the FTF process as a threat will begin to mount their arguments. He added that, in his view, the information compiled through this process, and the model results, will speak for themselves.

Mann asked where, in the IEAB’s view, the FTF’s results and recommendations appear to be trending. Grover said that only this morning he had discussed his initial thinking on PIT-tag recommendations to a small group of Council staff. Once that small group weighs in on those recommendations, I will incorporate their comments and share the document with the IEAB, Grover said. That would be very helpful, Mann said. In response to a question from Mann, Grover agreed that PIT tags are only a single piece of the puzzle; ultimately, it will be necessary to combine all of his recommendations into a holistic package. Having said that, there are issues that apply only to PIT tags, such as handling trauma to wild fish – it’s a fair question whether you should be doing that at all, especially for wild populations that are at low levels, Grover said. Jaeger noted that it would be possible to factor in tagging mortality as a cost in his model. I imagine your report

will also address possible future uses and elaborations of the model, Grover suggested.

One truism of model building is that by the time the model is built, you have a sense of what the model is going to tell you, although models certainly do produce surprising results at times, Jaeger said. In terms of comparing the various tagging technologies, there are some interesting things that have jumped out at me, pointing to certain advantages that some technologies have over others, relative to certain management questions. For PIT tags, the advantage is multiple detections both migrating to and returning from the ocean, without having to capture or harm the fish. That's something you can't do with coded-wire tags or, practically, with genetic tagging, Jaeger said. For coded-wire tags, the advantage is ocean harvest data, he continued, even if 99 percent of the fish tagged never make it that far. However, the cost per tag recovered is very large for coded-wire tags, even at a cost of 17 cents per fish tagged, because of the high mortality rate. Isn't CWT data also used to develop adult escapement estimates? Mann asked. That's correct, Jaeger replied; adding ocean and in-river fishery and escapement data to the model is on his to-do list for next week. Harvest isn't BPA's business, but escapement is, Mann observed. Escapement is certainly a key component of the question of how these populations are doing, Jaeger agreed.

The group discussed the feasibility of whether genetic tagging might be ramped up to the point that it can answer some of the key management questions other tagging technologies are now employed to answer. One member made the point that it is much simpler and cost effective to take a genetic sample than to recover a coded-wire tag, simply because every fish yields useful genetic data, but only one fish in five has a coded-wire tag. Grover added that he now has updated cost information; according to Rick Golden's numbers, a total about \$61 million was spent on tagging in the Columbia Basin in FY'12.

One other version you may consider modeling is what's important to the Fish & Wildlife program, Grover said. We looked at the spider chart to see what is of no interest to the F&W program, what we're neutral about, what we're somewhat interested in and what we're very interested in. Because of the way the F&W program is written, it would probably be useful to value and de-value certain management questions in one iteration of the model to reflect those ratings, Grover said – that would be extremely useful information for the Fish & Wildlife Committee, given their charge. Jaeger said it would be possible to do that, and also to do the same to reflect, say, BPA's statutory responsibilities.

The group discussed next steps in this task. Mann asked Jaeger to send him an email regarding his latest findings on the total cost issue; Jaeger agreed to do so. In terms of deliverables by April 30, said Mann, it sounds as though we will need to have the model work pretty much done by early April, in order to produce a draft, review and finalize a report for the Fish & Wildlife Committee by April 30.

What about the question of which scenarios you will use the model to evaluate? Mann asked. That is a key question, Jaeger agreed; the FTF recently put together a ranked list of indicators – high, medium or low priority, by agency, linked to the various tag technologies currently employed to gather data. One way to begin thinking about alternative modeling scenarios is to look at those ranked indicators and think about model runs that represent only high and medium priorities for, say, the Council’s Fish & Wildlife program.

In my mind, there are two main scenarios I would like to see modeled, said Mann. One is the existing condition – what is being done now, and it would be very useful if the model could compare that to a least-cost scenario that might, for example, rely more heavily on genetic tagging, Mann said. Jaeger replied that it would take a lot of work to create a model that aggregates the average level of detection over the past 10 years. But without that, it would be difficult to see how much we might save if we go to a different combination of tagging technologies, Mann said. Grover replied that he is not sure that is true – different combinations of technology will yield different estimates of cost, no matter which scenarios we model. We could also constrain the model to use coded-wire tags rather than, say, genetics, for a given activity, such as ocean harvest, in order to look at the cost difference, Jaeger suggested. The other scenarios would deal with changing the priority of the management questions or indicators, Mann added. It is also possible that a third scenario could be guided by the model results – which management questions are operative, and which are constraining, Mann said. Ultimately, Mann suggested that the IEAB can refine the scenarios further once the model is ready; he said it was his understanding that the first two scenarios to be modeled will be something close to the existing conditions, and a least-cost alternative. He added that he, Jaeger and Grover will discuss the budget for this item.

### 3. *Invasive Mussels Task.*

Mann said the Council has now approved this task, although it is somewhat different from the task as originally described. Rather than an analysis of the appropriate cost share for a prevention program, the task is now to produce an update on the IEAB’s previous mussel analysis, together with an analysis of the cost of various prevention strategies. Mann said he has already begun work on this task and invited any other interested IEAB members to join him.

Mann said data from the recent Portland State University Columbia River water chemistry study indicate that there is a better chance that mussels could become established in certain parts of the Columbia Basin than previously thought. One of the new Montana Council members has expressed an interest in data on calcium concentrations in Montana waters, said Mann; however, I have not been able to find any recent data on that question. Netusil said she is willing to assist Mann with this analysis. Mann said he will be looking at the cost of existing prevention strategies and suggesting some cost-effective alternatives, based on

a search of the available literature. He added that he will draft an updated outline for this task and will circulate it for IEAB review in the next two weeks.

#### *4. IEAB Collaboration with ISAB and ISRP.*

This was a major priority six months to a year ago, Mann said, but seems to have been put on the back burner to some degree. He asked Grover what the Council is currently thinking on this issue. Grover replied that, on the IEAB's two current tasks, it is already working fairly closely in tandem with the two science boards, although the recommendations that come out of those two tasks would likely benefit from more formal review and collaboration with the science boards. Mann said he will ask Eric Merrill to request that the science boards review the IEAB's mussel report prior to its presentation to the Council. Mann added that, in his view, it would be very useful for the ISAB to review the scientific aspects of the model Jaeger is producing for the Fish Tagging report. Jaeger agreed, with the understanding that it will not be possible for the ISAB to complete its review prior to April 30.

The group devoted a few minutes of discussion to the question of how appropriate it is to ask the science boards to weigh in on the validity of the IEAB's fish tagging economics model. Mann said he is concerned because the model relies heavily on biological data as well as economic data; Jaeger replied that this is the primary reason he has been attending the FTF meetings – so that he can use the best possible biological data in the model. I think it's a good model, he said. Mann expressed the concern that the IEAB could be leaving itself open to negative judgments about the quality of its work if the model does not undergo thorough scientific review, given the degree to which it incorporates biological data. Grover replied that, given the political sensitivity of the FTF's work, some criticism of the IEAB's work is likely inevitable. He added that, in his view, it may not be that useful to ask the science boards to pass judgment on the IEAB's economic modeling work. Wu observed that "review" does not necessarily mean "approve," adding that he does see benefit in asking the science boards to review the validity of the scientific data and assumptions used in the model. Grover observed that, as long as the IEAB carefully considers the specific questions they would like the science boards to answer, such an approach may be useful.

Jaeger noted that, while the science boards may be able to provide valuable input about the validity of the biological data and assumptions used in the model, they would not necessarily be able to fully appreciate the various sensitivities and tradeoffs built into the model. One way to address that will be to include detailed information in our report on where, for example, the simplifying assumptions I've included came from, Jaeger said – explaining and documenting the participation of the other FTF members in the development of the model. It will also help to

anticipate and address some of the likely questions or criticisms in the report, Wu suggested. I think we're all on the same page, said Mann.

*5. Next IEAB Meeting Date.*

The next Independent Economic Analysis Board meeting was set for May 31 (a face-to-face meeting at the Council's Portland offices) from 9:30-3:30.

Meeting summary prepared by Jeff Kuechle, NWPPC contractor.

These minutes are an accurate and complete summary of the matters discussed and conclusions reached at the Independent Economic Analysis Board meeting held on March 7, 2013.

Certified by: \_\_\_\_\_  
Roger Mann, Chair