Response to Second Minute of Marlborough Salmon Relocation Advisory Panel

David Thompson
8 May 2017

I have read, and agree to comply with, the Code of Conduct for Expert Witnesses.

Comments on the Submission of Graeme Taylor

Graeme Taylor raises an issue not covered in my report (Thompson 2016). He notes that salmon farms use underwater lights and that this light source could attract some groups of seabirds, including storm petrels, diving petrels and fairy prion. He goes on to note that he does not consider this to be a 'huge risk' and recommends monitoring of this potential impact if approval of farm relocation is approved.

I agree with Graeme Taylor on this point.

Comments on the Submissions of Paul Fisher (part of Written Comment No: 0587) and of Rob Schuckard (part of Written Comment No: 0598)

In general terms, the comments of Paul Fisher and Rob Schuckard are broadly similar. For this reason I have chosen to produce a combined response to their comments.

I broadly agree with comments on the 'Global conservation status of New Zealand seabirds' (Fisher paragraphs 5-7), and comments on the 'Marlborough Sounds Important Bird Area' (Fisher paragraphs 8-12), although I am unaware of any area identified as 'NZ king shag Important Bird Area (see heading following Fisher paragraph 12).

I agree with comments on 'NZ king shag conservation status' (Fisher paragraphs 18-20, Schuckard paragraphs 38-39), excepting to note the following. The New Zealand classification of 'threatened – nationally endangered' is based not only on the fact that this taxon has a relatively small population size of 250-1000 mature individuals, but also that this small population is considered stable (Robertson et al. 2013). Likewise, the IUCN's Red List classification of New Zealand king shag as 'vulnerable' is based the taxon's small population size and restricted area of occupancy (as noted by Schuckard paragraph 42), specifically criteria D1 and D2 within the 'vulnerable' classification. Rob Schuckard comments further (paragraph 103) that both the Marlborough Sounds IBA designation (Forest & Bird 2014) and the IUCN (Red List) distribution map (for king shag) incorporate distance from breeding colonies (25 km) and water depth (50 m), but, as far as I'm aware, not on the third criterion, 'in southwestern direction from colonies', as in Rob Schuckard's paragraph 103.

There is some disagreement around whether the king shag population can be described as 'stable' (for example, Fisher paragraphs 21-24, with additional notes in paragraphs 25-34). Based on the available information, and noting that I think it would be fair to say that the population estimate record over time for king shag is less than ideal (this is not intended in any way as a criticism of any of the data collectors, rather a reflection of the data having been collected at irregular intervals, sometimes using varying protocols on what is a

challenging species), my view is that the most parsimonious conclusion that one can draw from the data is that the king shag population has remained more or less the same (i.e. is stable in terms of the number of individuals) over recent decades. One can draw this conclusion without knowledge of the underlying demographic processes (for example, breeding success, rate of recruitment of fledglings to the breeding population, rate of adult survival from one year to the next, and how these parameters vary inter-annually). Indeed, the conclusion that the population is stable in this sense has been drawn by Schuckard (2006), Bell (2010), MacKenzie (2014) and by Robertson et al. (2013) in assigning king shag to its current New Zealand conservation status.

I disagree with comments around 'nutrient enrichment' and 'changes in prey availability and foraging efficiency' (for example Fisher paragraphs 56 and 70, Schuckard paragraph 98). As I noted in my report (Thompson 2016), and based on the modelling work of Broekhuizen & Hadfield (2016), the increased amounts of feed associated with the proposed new farm locations will result in relatively small (a few percent) increases in material in the water column, including nitrogen and phytoplankton. I acknowledge that increased water turbidity has the potential to reduce foraging efficiency in visual foragers, but I think the likely changes in these parameters are of a scale to not adversely affect king shags. Further, the relatively modest increases in nutrients within the water column and associated increases in marine production (phytoplankton and zooplankton), ultimately leading to enhanced biomass at higher trophic levels, will be at worst neutral, possibly positive, for king shags. However, predicting how these increases in productivity might affect king shags is extremely difficult.

References

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