

Summary of peer review comments and response for the *Status review update of Southern Resident killer whales, July 31 2013.*

Summary compiled April 8th, 2014

The May 8th, 2013, draft of the status review was sent to six internal NMFS peer reviewers¹. All six provided at least some substantive comments. Comments and associated responses are summarized in Table 1. Purely editorial comments related to spelling, grammar, or minor changes in wording or sentence structure are not reported here but are available upon request (mike.ford@noaa.gov).

¹ Robin Waples (NWFSC), Barbara Taylor (SWFSC), Philip Morin (SWFSC), William Perrin (SWFSC), Marilyn Dahlheim (AFSC), Robyn Angliss (NMFS Alaska Region)

Table 1 – Summary of substantive comments and responses.

Reviewer	Page number	Section	Comment	Response
Taylor	4	Summary of taxonomic issues addressed by the 2004 BRT	Reviewer questioned whether at the time of the 2002 status the draft report was correct in saying "...generally prevailing scientific opinion was that killer whales worldwide belong to a single polytypic species, <i>Orcinus orca</i> ..." and suggested that it would be more accurate to say "...many scientists believed that killer whale worldwide...".	Final text was changed to say that "...the most recently published taxonomy of killer whales placed them in a single polytypic species.."
Waples	10	Taxonomic issues, general principles	Regarding the Haig et al. 2006 review of subspecies definitions, reviewer asked whether the same author had a more recent paper on the topic.	We were unable to locate a more recent paper; text remained unchanged.
Dahlheim	12	Morphology and color variation	Reviewer suggested citing two addition references regarding morphological variation in killer whales (Olsen et al. 2012 and de Bruyn et al. 2012).	Added the Olsen et al. reference to the morphology section; added the de Bruyn et al. reference and a summary of their conclusions to the "Review Papers" section on p. 22.
Angliss	12	Morphology and color variation	Reviewer questioned whether it was necessary to discuss new information on Antarctic killer whales in a status review of southern resident killer whales. (Similar comments were made on pp. 13, 20, and 21).	The reviewer's point is well taken, but the original (2002/2004) status review also had discussion of ecotypic variation worldwide (including Antarctica). Information on ecology and population structure worldwide is also useful context for understanding patterns of

variation in the North Pacific. We therefore elected to include this section in the final text.

Angliss	17	Genetics	Reviewer suggested defining monophyletic clade	We determined that most readers would either know this term or be able readily look it up so did not change text.
Morin	18	Genetics	Suggested the report note that Morin et al. (2010) concluded that North Pacific residents, offshores, North Atlantic populations, and the Antarctic A type may be elevated to full species status in the future if additional data support evolutionary distinctiveness.	Added suggested text.
Morin	18	Genetics	Noted that Foote et al. 2009 and 2010 studies were based on mtDNA control region sequence, not full mitogenomes as indicated in the draft report.	Corrected the text.
Angliss	18	Genetics	Reviewer suggested providing some context for the reader to know whether 57 fixed differences between transients and residents is a large or small degree of divergence.	This context is provided later on p. 21 where the divergence is put in the context with broad reviewers of genetic divergence between species.

Morin	21	Summary, Genetics	Reviewer noted that report discussed the percent mtDNA sequence divergence between the North Pacific ecotypes, but left the actual value blank. Reviewer suggested that there was not single threshold for species status.	Filled in blank value, noted that divergence between ecotypes is much less than has been typically reported between full species. Even if there is not single threshold for species status, such comparison still provide useful context for evaluating the degree of evolutionary divergence compared to other taxa.
Taylor	21	Summary, Genetics	Regarding text saying that because it is a single locus, mtDNA has some 'limitations" for inferring population structure, the reviewer commented: " I think it will not be clear to most readers why this is a limitation. "	The original sentence was replaced with a short paragraph that focused on the advantages of looking at multiple genetic markers.
Angliss	21	Summary, Genetics	Reviewer noted that is was interesting that the mtDNA sequence divergence between resident and transient killer whales is far less than is typical for described mammalian sisters species, but suggested that the SRKW are a special case and are likely to be a DPS regardless of phylogenetic depth.	Text was modified to 1) put in the actual estimated sequence divergence between residents and transients (using data from Morin et al. 2010), and 2) to note that this was much less than typical between mammalian sister species, 3) to note that therefore if the residents and transients are distinct species they must be relatively young species, and 4) note that the relatively shallow divergence could also be consistent with incipient speciation or subspecies.
Angliss	23	Determination of the Taxon	Reviewer suggested referencing the point about shallow divergence time and explaining why this does or does not matter for killer whales species	We agree this is an important point, but believe the text adequately discussed the issues both there and on p. 21 so did not make any changes.

designations.

Taylor	26	Determination of the DPS	Regarding the ecological distinctiveness criteria for DPS, the reviewer noted that SRKW are also the top predator in the California current ecosystem and therefore were they to go extinct there would be ecosystem level effects.	This might be true, but ecological effects on species or on the ecosystem as a whole are not considered in the DPS policy, so this point was not added to the final text.
Dahlheim	26	Determination of the DPS	Reviewer suggested mentioning that the offshore ecotype has recently been observed to consume Chinook salmon.	This point was added to the discussion of ecotype differences/similarities on p. 23.
Dahlheim	27	Determination of the DPS	Reviewer suggested adding the point that new information also indicates potentially more dietary and spatial overlap with the offshore ecotype that was known by the 2004 BRT.	The text was edited to make this point.
Perrin			Noted the report was “nicely balanced”.	No changes made in response to comment.
