Date: 26 June 2009

Subj: Review of "***Draft Loggerhead Sea Turtle (Caretta caretta) 2009 Status Review***"

I have reviewed the ***Draft Loggerhead Sea Turtle (Caretta caretta) 2009 Status Review*** document as well as the "***Threats Matrices***" and "***Life History Parameters***" spreadsheets. I want to compliment the Loggerhead Biological Review Team (=Review Team) for their comprehensive review and analyses. The Review Team provides very convincing data in support of their recommendations and conclusion to divide the global loggerhead "population" into 9 distinct population segments (DPS).

I have a few comments with respect to approach that I believe need to be addressed to ensure acceptance and successful implementation of the recommendations of the Review Team particularly within the international sea turtle community:

1. I understand that this ***Status Review*** was an exercise undertaken by USA federal and state agencies mandated by the USA ESA. However, of the 9 DPS identified, only one, the Northwest Atlantic Ocean DPS, has nesting beaches within the USA. Therefore, there is a critical need to have buy-in by international agencies / institutions on the agreement of the 9 proposed DPS. We are now at a time when international NGO initiatives, e.g., IUCN-Red Lists, are recognizing and implementing "regional assessments." For example, the IUCN-Marine Turtle Specialist Group (MTSG) Burning Issues Initiative has proposed the following 11 regional management units for loggerheads (I tabulated these for comparison with the proposed DPSs):

Loggerhead 2009 Status Review Proposed DPSs	IUCN – MTSG Burning Issues Initiative Management Units
North Pacific Ocean DPS	North Pacific
South Pacific Ocean DPS	South Pacific
North Indian Ocean DPS	Northern Indian Ocean
	NE Indian Ocean
Southeast Indo-Pacific Ocean DPS	= (?) SE Indian Ocean
Southwest Indian Ocean DPS	SW Indian Ocean
Northwest Atlantic Ocean DPS	NW Atlantic
Northeast Atlantic Ocean DPS	= Cape Verde
Mediterranean Sea DPS	Mediterranean
South Atlantic Ocean DPS	Western South Atlantic
	Eastern South Atlantic

The geographic breakdown is similar to the 9 DPSs with the addition of Eastern South Atlantic and NE Indian Ocean. These differences should be easy to reconcile. It would be very problematic to have different approaches by various international agencies resulting in different designated "regions" or metapopulations or management units compared with the USA's 9 DPSs. Has the IUCN-MTSG Red List assessment team or IUCN-MTSG Burning Issues group reviewed this document? I would suggest that some discussion of this topic be included in the ***Status Review*** and suggest ways to reconcile these differences. Again, I understand that this is a USA policy document, but the USA needs to be in step with the rest of the world – the conservation and management of loggerheads globally will not be advanced if various approaches are used that lead to divergent conclusions as to the appropriate "geographic units" for assessment, management, and policy development.

2. I didn't see any discussion of metapopulations with respect to the identification of DPSs. Actually, the term "metapopulation" was absent from the ***Status Review***. I would have thought current metapopulation theory would be the foundation upon which DPSs would have been designated. The ***Status Review*** needs to at least address metapopulations and recent publications about marine metapopulations. See for example two recent books on metapopulations and one on conservation connectivity:

   J.P. Kritzer and P.F. Sale (eds.). 2006. ***Marine Metapopulations***. Elsevier Press, NY.

   I. Hanski and O. Gaggiotti (eds.). 2004. ***Ecology, Genetics and Evolution of Metapopulations***. Elsevier Press, NY.

   K.R. Crooks and M. Sanjayan (eds.). 2006. ***Connectivity Conservation***. Cambridge University Press.

3. I am concerned that the analyses were based on deterministic matrix models to determine population growth rates. There was no discussion why this modeling approach was chosen compared with recent developments in the use of GAM, GAMM, Bayesian state-space, or

other modeling approaches. It would be appropriate for the Review Team to justify their approach and decision to use deterministic matrix models.

4. With respect to the population increase for the South Atlantic Ocean DPS, the Review Team should point out the >40% decline for the Florida nesting population during the last decade following at least 2 decades when managers thought the population was doing well and increasing. The potential for increasing bycatch to seriously affect the South Atlantic Ocean DPS needs to be emphasized. We are only now beginning to realize that the increasing bycatch along the coast of SW Africa may be impacting the Brazilian nesting populations.

A few specific suggestions:

5. In the Threats Matrices, the listing of the lifestages are not in biological sequence: oceanic juveniles should be before neritic juveniles.

6. Figure 4 (page 52): the ln(counts) value for 1964 doesn't look right. Was there a change in effort beginning in 1965; if so, the data analyses should begin with 1965.