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**From:** Howard Brown - NOAA Federal <howard.brown@noaa.gov>  
**Sent:** Friday, March 29, 2019 8:13 AM  
**To:** Barbara Byrne; Joe Heublein - NOAA Federal; Brian Ellrott; Garwin Yip; Cathy Marcinkevage; J. Stuart; Naseem Alston; Rosalie del Rosario; Boring, Susan; Dan Lawson - NOAA Federal  
**Subject:** Integration and Synthesis

I&S Team,

On Monday we will begin drafting the Integration and Synthesis section of the BiOp and on Tuesday afternoon we will have a check-in meeting to officially kick this off. You may ask, "why a kick-off meeting on Tuesday when we start on Monday?". Well, I would imagine that most people's brains are tired from writing the Effects Analysis and I think it would be a good idea to take some time to read up on and refresh our knowledge about with the Integration and Synthesis is meant to accomplish and how we go about writing this section. So, I want to direct us to a few documents:

For baby boomers: Read the following material or you will be fired:

For Gen X'rs: It would be helpful to look at the following material before our Tuesday meeting:

For Millennials: Read the following materials before our Tuesday meeting and get back to me with an email on Tuesday at noon confirming that you have read this:

1. The WCR BiOp Template section for Integration and Synthesis (I&S section copied below for quick reference):

**M:\ESA\_section 7\all TEMPLATES and Examples for LOC & BO and checklists\NEW TEMPLATES - CCVO & 508 Formatting**

2. The WCR Guidance for Integrating Recovery Plans into Regulatory Work. See Page 7, where the BiOps Section starts and also Page 10 where the Integration and Synthesis section begins.

**M:\ESA\_section 7\Integrating Recovery Plan into S7**

3. The 2009 OCAP outline for the I&S (see table of contents) and the I&S itself:

**M:\OCAP BO**

4. The 2016 CWF outline (see table of contents) and I&S itself:

**M:\CWF\FINAL BiOp**

That should be enough read-ahead information to get you going on this topic.

Thanks again for all of the work you are putting into this BiOp!

Howard

## **Integration and Synthesis**

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section

2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (Section 2.2), to formulate the agency’s biological opinion as to whether the proposed action is likely to: (1) Reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminishes the value of designated or proposed critical habitat for the conservation of the species.

*[Separate the critical habitat discussion from the species discussion. For the species discussion, make sure to address individually the likelihood of survival and recovery.]*

*When writing or reviewing this section, please be sure that it:*

- *Integrates status, environmental baseline, effects of the action on species and critical habitat, and cumulative effects. It should contain a minimum of at least one statement about each of these factors, and ideally provide detailed explanation.*
- *Places effects on individual animals in the context of their impact on each population’s ability to achieve and maintain viability criteria, as described in recovery plan information. If the recovery plan describes different roles for individual populations in species-level recovery, describe how we considered the affected population’s role in recovery when evaluating the effects of the action on the species as a whole.*
- *Incorporates recovery plan information, including the role of the population in the recovery of the species and whether the consequences of the proposed action are likely to reduce the species’ probability of recovering given the goals, strategies, and recommended actions laid out in the recovery plan.*
- *Expressly includes the risk posed by climate change when it is relevant to the analysis. The section should state how the effects of the action, the status, baseline, and cumulative effects are expected to be impacted by climate change. (See WCR Climate Change Guidance, [link available here](#), for points that should be addressed and the WCR S7 Climate Change White Paper, [link available here](#), for guidance and resources to help address those points.)*
- *Ensure the analyses consider the effects the action will have on the entire listed unit and designated critical habitat as a whole.*

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