

## **Background on the Endangered Species Act Section 7 Consultation Process and the Biological Opinion on the Federal Groundfish Fisheries in the Bering Sea/Aleutian Islands and the Gulf of Alaska**

Section 7(a)(2) of the Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) or U.S. Fish & Wildlife Service (depending on which Service has jurisdiction over the particular species) regarding actions that may affect threatened or endangered species. Formal consultation results in a Biological Opinion (BiOp) that describes the action, reviews species biology, and makes a conclusion as to whether the action is likely to jeopardize the continued existence of the listed species or to adversely modify its designated critical habitat (JAM). Adverse modification is determined to occur when the direct or indirect effects of an action “appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.” The consultation process is not required to employ a “prove-disprove” or statistical evaluation process, but instead may evaluate the best available information in a “weight of evidence approach” to make a determination. Furthermore, the ESA excludes consideration of social and economic factors when crafting an agency’s evaluation and conclusion in a BiOp.

BiOps are developed following an assessment framework integrating the procedural and analytical requirements of Section 7 of the ESA and supporting case law. NMFS must base its BiOp analysis on the “best scientific and commercial data available” (see below). This analysis works through the following steps:

1. Identify the “action” – in this case the continuation of implementing the groundfish fisheries of the GOA, Bering Sea and Aleutian Islands.
2. Deconstruct the action into its component parts:
  - a. identify specific stressors, be they direct or indirect, likely to result from the action
  - b. describe the intensity of the stressors
  - c. describe the spatial distribution of the stressors
  - d. describe the temporal distribution of the stressors
3. Identify the action area – determine all areas that will be affected directly or indirectly by the action across space and time.
4. Assess the direct or indirect *exposure* of the listed species to the physical, chemical, and biotic stressors of the action based upon anticipated overlap in spatial and temporal distributions. Identify:
  - a. the physical, chemical and biotic stressors of the action
  - b. the pathway of exposure (e.g., direct and/or indirect exposure)
  - c. where exposure would occur
  - d. what portion of the population, life history, or stage would be exposed
  - e. the numbers or portion of the population affected
  - f. the timing, magnitude, duration, and frequency of exposure
  - g. how exposure might vary depending on characteristics of the environment, stressor intensity, and individual behavior.
5. Assess species *responses* to exposure.  
How are individuals likely to respond to the exposure?  
Would the exposure be sufficient to evoke a particular response in the population?

Actions potentially resulting in habitat modification or destruction are indirect effects – as these effects may ultimately cause demographic effects on individuals or populations of a listed species. In this case the assessment must determine if a species habitat is likely to change in response to action-related changes in the quantity, quality, or availability of one or more of the resources that comprise its habitat.

To meet the statutory requirement to insure a proposed action is not likely to cause JAM, the agency conducts its analysis to avoid concluding that the action had no effect on listed species or its habitat when, in fact, there was an effect. This approach minimizes the likelihood of making a false negative conclusion (absence of evidence is not evidence of absence). In doing so, the agency must use the "best scientific and commercial data available," and in cases where information is incomplete, clearly articulate the rationale for reaching a conclusion (thus avoiding being found to have made an arbitrary or capricious conclusion). At times, this approach to error may lead to different conclusions than would a more traditional scientific approach to hypothesis testing, but it is in compliance with direction from the ESA and the courts to provide the benefit of the doubt to the species.

6. Assess *risk*: to individuals, populations, and to species.
  - a. Would the response of the individuals exposed to the action be sufficient to reduce the fitness of those individuals?
  - b. Would changes in the fitness of these individuals be sufficient to increase the extinction risk (or reduce the probability of persistence and recovery) of the populations, given what is known about the species?
  - c. Would changes in the extinction risk (or persistence) of those populations be sufficient to increase the extinction risk of the species, given its status?
7. Make a determination regarding jeopardy.

NMFS must conclude whether the action is likely to jeopardize the continued existence of the listed species. Diagnosing a species status is critical because the jeopardy standard assumes that threatened or endangered species, by virtue of being listed under the ESA, have crossed thresholds where they face unacceptable risks of extinction and are assumed to be dominated by the dynamics of declining populations, small populations, or both.

The jeopardy standard by regulation requires the agency to ensure the action is not likely to result in *appreciable reductions in the likelihood of both the survival and recovery of the species in the wild by reducing its numbers, reproduction or distribution.*

8. Make a determination regarding adverse modification to critical habitat.

NMFS must conclude whether the action would adversely modify designated critical habitat for the species. NMFS must determine whether affected designated critical habitat is likely to remain functional (or retain the ability to become functional) to serve the intended conservation role for the species both in the near and long term under the effects of the action (vis: "destruction or adverse modification" can occur when sufficient critical habitat is lost so as to threaten a species survival *and recovery*).

#### **What constitutes the "best available scientific and commercial information?"**

When conducting section 7 consultations, agency biologists use the best scientific and commercial information available. This information may include the results of studies or surveys conducted by the agency, information contained in past biological opinions and biological assessments, listing rules, including critical habitat designations, and published and unpublished studies done on the species. Incorporating information from the Steller Sea Lion Recovery Plan (NMFS 2008) is particularly useful in this evaluation as this plan provides demographic criteria for recovery and identifies key aspects of the species population biology and habitat that are at risk.

At times even the best information available may not provide a sufficient basis to predict effects to a species. When this is the case, the agency draws conclusions by making inference based on all the evidence gathered during the consultation, making comparison to patterns that have been documented in other species that may have collapsed or gone extinct, and other knowledge of ecological theory. If it is not possible to develop such information, consulting agencies use the information that is available and provide the benefit of the doubt to the species when evaluating the potential for jeopardy and adverse modification.