

**PART 2**

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**Guidance on Specific  
Biological Assessment Topics**



## **4.0 Components of a Biological Opinion**

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## Contents

4.0	Components of a Biological Opinion .....	4.3
4.1	Consultation History .....	4.6
4.2	Description of the Proposed Action .....	4.6
4.3	Description of the Action Area .....	4.6
4.4	Status of Listed Species.....	4.6
4.5	Environmental Baseline Conditions .....	4.6
4.6	Effects of the Action .....	4.7
4.7	Cumulative Effects.....	4.7
4.8	Integration and Synthesis .....	4.7
4.9	Conclusion .....	4.8
4.10	Incidental <i>Take</i> Statement .....	4.8
4.11	Reasonable and Prudent Measures.....	4.8
4.12	Terms and Conditions .....	4.9
4.13	Conservation Recommendations .....	4.9
4.14	Reinitiation Notice .....	4.9
4.15	Literature Cited.....	4.10

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## Tables

Table 4.1.	Example of National Marine Fisheries Service outline. ....	4.4
Table 4.2.	Example of a U.S. Fish and Wildlife Service outline. ....	4.5

## 4.0 Components of a Biological Opinion

A biological opinion is the document prepared by NMFS or USFWS (referred to commonly as the Services) as part of the formal consultation process, to be issued at the culmination of this consultation process. This chapter provides a brief overview of the components of a biological opinion.

In general, a biological opinion is required when an action (e.g., construction activity) is estimated to adversely affect an ESA-listed plant or animal species. Depending upon the species in question, NMFS or USFWS issues a biological opinion on the effects of the proposed action on the affected ESA-listed species. If the agency concludes that the species will be unaffected, the proposed action receives a *no-jeopardy* biological opinion and continues as planned. If the proposed action is found to *jeopardize* a species, the federal government may propose alternatives, require additional mitigation measures or deny the project. If the proponent can modify the project to align with proposed alternatives and/or satisfy the recommended mitigation requirements, the proposed action can proceed.

An example of a biological opinion outline is provided below. Though NMFS and USFWS may organize their documents differently, and documents prepared by different regional offices of the same agency may also differ organizationally (see Tables 4.1 and 4.2), each of the sections typically included in a biological opinion is discussed in detail in this chapter:

- I. Consultation history
- II. Description of proposed action
- III. Description of action area
- IV. Status of species and critical habitat
  - A. Species and critical habitat description
  - B. Life history
  - C. Population dynamics
  - D. Status and distribution
  - E. Analysis of species and critical habitat likely to be affected
- V. Environmental baseline conditions
  - A. Status of species within the action area
  - B. Factors affecting species environment within the action area
- VI. Effects of the action
  - A. Factors to be considered
  - B. Analyses of effects of the action
  - C. Species response to the proposed action
- VII. Cumulative effects
- VIII. Integration and Synthesis
- IX. Conclusion
- X. Reinitiation statement
- XI. Reasonable and prudent alternatives (as appropriate)
- XII. Incidental *take* statement
  - A. Introductory paragraph

- B. Amount or extent of *take* anticipated
  - C. Effect of the *take*
  - D. Reasonable and prudent measures (as appropriate)
  - E. Terms and conditions
- XIII. Conservation recommendations (as appropriate)
- XIV. Literature cited

An example of a NMFS biological opinion outline is provided in Table 4.1 below.

**Table 4.1. Example of National Marine Fisheries Service outline.**

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NMFS BiOp
<b>Consultation History</b>
<b>Description of Proposed Action</b>
Isolating the Work Area from Flowing Water
Streambank and Channel Work to Stabilize the Area
Restoration of the Work Area
<b>Status of the Listed Species (Steelhead)</b>
Status
Life History and Habitat Requirements
Status of Critical Habitat
<b>Environmental Baseline</b>
Status of Steelhead in the Action Area
Factors Affecting Steelhead in the Action Area
<b>Effects of the Proposed Action</b>
Alteration of Aquatic Habitat
Capture and Relocation of Steelhead
Loss of Aquatic Insects
Disturbance to Streamside Vegetation
Alteration of Water Quality
<b>Cumulative Effects</b>
<b>Integration and Synthesis</b>
<b>Conclusion</b>
<b>Incidental Take Statement</b>
Amount or Extent of Take
Effect of Take
Reasonable and Prudent Measures
<b>Terms and Conditions</b>
<b>Reinitiation of Consultation</b>
<b>Literature Cited</b>
<b>Appendices</b>

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An example of a USFWS biological opinion outline is provided in Table 4.2 below.

**Table 4.2. Example of a U.S. Fish and Wildlife Service outline.**

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USFWS BiOp
<b>Consultation History</b>
<b>Description of the Proposed Action</b>
Bridge Features and Construction
Stormwater Design
Compensatory Mitigation
Conservation Measures
<b>Action Area</b>
<b>Analytical Framework for the Jeopardy and Adverse Modification Determinations</b>
<b>Status of the Species (Bull Trout)</b>
<b>Status of Critical Habitat (Bull Trout)</b>
<b>Environmental Baseline</b>
Environmental Baseline in the Action Area
Status of the Species in the Action Area
Status of Critical Habitat in the Action Area
Effects of Past and Contemporaneous Actions
<b>Effects of the Action</b>
Insignificant and Discountable Effects (Bull Trout)
Adverse Effects of the Action (Bull Trout)
<i>Exposure to Elevated Underwater Sound Levels Exposure to Elevated Turbidity and Sedimentation</i>
Summary of Effects (Bull Trout)
Effects to Bull Trout Critical Habitat
Indirect Effects (Bull Trout and Critical Habitat)
Effects of Interrelated and Interdependent Actions (Bull Trout and Critical Habitat)
<b>Cumulative Effects (Bull Trout and Critical Habitat)</b>
<b>Integration and Synthesis</b>
<b>Conclusion</b>
<b>Amount or Extent of Take</b>
<b>Effect of the Take</b>
<b>Reasonable and Prudent Measures</b>
<b>Terms and Conditions</b>
<b>Reinitiation Notice</b>
<b>Literature Cited</b>
<b>Appendix A:</b> Bubble Curtain Specification
<b>Appendix B:</b> Status of the Species (Bull Trout; Coterminous Range)
<b>Appendix C:</b> Status of Designated Critical Habitat (Bull Trout; Coterminous Range)
<b>Appendix D:</b> Core Area Summary (Bull Trout)
<b>Appendix E:</b> Sediment Analysis Framework (2010)

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## **4.1 Consultation History**

This section of a biological opinion provides a brief overview of the consultation process. This section would describe any pre-consultation activities such as attendance at a pre-BA meeting or site visits, and identify when consultation was initiated, if the consultation period was extended, the date of reinitiation of consultation if applicable, whether additional information was requested and when it was received. This section also indicates that a complete administrative record of the consultation has been filed and where these files can be accessed.

## **4.2 Description of the Proposed Action**

This section provides a detailed description of the proposed action: all primary and secondary construction elements, timing, equipment, impact minimization measures, etc. Essentially this section deconstructs the action into its constituent elements, explains how and when these elements will be implemented, and explicitly identifies what measures have and will be taken to minimize potential impacts.

## **4.3 Description of the Action Area**

This section identifies the geographic extent of the action area and provides rationale for how the limits of the action area were determined. The action area envelops all areas that could sustain direct or indirect impacts associated with the proposed action as well as any interrelated or interdependent activities.

## **4.4 Status of Listed Species**

This section provides an overview of the federal status of the listed species, identifies the delisting goals for species, and describes the conservation needs of the species (pertaining to habitat, behavior, and life history requirements).

This section also characterizes the federal status of designated critical habitats and describes the physical or biological features of these habitats.

## **4.5 Environmental Baseline Conditions**

This section of the biological opinion describes the environmental setting and environmental conditions within the action area. Often the section is divided into detailed descriptions of specific habitat components such as wetlands, riparian areas, upland areas, and developed areas. The environmental baseline discussion describes the physical and biological characteristics of habitats in the action area generally and also as they pertain to particular species or life stages of species. This section also describes the history of disturbance to these habitats, what actions or developments have previously occurred and the relevance of the resulting environmental conditions on the status of listed species in the action area.

The status of species within the action area is summarized in this section, along with the conservation needs of the species within the action area. The environmental baseline discussion also characterizes habitat conditions within the action area as they pertain to designated critical habitats.

This environmental baseline information is critical for the effects analysis, because the response of species and critical habitats to a proposed action is in part determined by the conditions those species and habitats already face (the baseline).

## **4.6 Effects of the Action**

This section provides a detailed analysis of the effects of the proposed action on listed species and any effects associated with interrelated and interdependent actions or activities. The analysis includes detailed exposure analysis, response analysis, and risk analysis for each of the species addressed in the biological opinion. The exposure analysis identifies the effects of the action that will likely overlap with species presence within the action area. The response analysis determines how listed species are likely to respond after exposure to these effects. The anticipated responses are based upon information in peer-reviewed literature, field studies, and reports from previous projects. The risk analysis determines the overall risk of the project for each listed species by comparing the exposure and response analyses.

This section also analyzes potential project impacts as they pertain to the physical or biological features of designated critical habitats.

## **4.7 Cumulative Effects**

The cumulative effects analysis is confined to the action area defined for the proposed project and assesses the effects of future state, tribal, local, or private actions that are reasonably certain to occur. This section of the biological opinion analyzes cumulative effects and assesses the risks to listed species and designated critical habitats that are associated with individual activities.

## **4.8 Integration and Synthesis**

In the integration and synthesis, the Services add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the species and critical habitat, analyze whether the proposed action is likely to: (1) directly or indirectly reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species; or (2) directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

Viability criteria, as described in recovery plans and supporting information, must be addressed in the Integration and Synthesis section. The Services describe how the effects of the action on individuals and critical habitat are likely to exacerbate, add to, or alleviate relevant threats or

limiting factors identified in a recovery plan. This information is needed to understand the action's influence on the affected population's ability to achieve and maintain its viability criteria.

The Integration and Synthesis section is the final step in assessing the risk that the proposed action poses to species and critical habitat.

## **4.9 Conclusion**

This section summarizes the analysis provided in previous sections of the biological opinion and concludes whether the proposed project would or would not jeopardize the continued existence of a listed species, and would or would not destroy or adversely modify designated critical habitat.

## **4.10 Incidental *Take* Statement**

Section 9 of the Endangered Species Act and federal regulations issued pursuant to Section 4(d) of the ESA, prohibit *take* of endangered and threatened species, respectively, without a special exemption. An incidental *take* statement provides action agencies with an exemption from the taking prohibition, under Section 7(o)(2), as long as any taking meets the terms and conditions identified in the incidental take statement. The incidental *take* statement specifies the amount or extent of *take* that is authorized (i.e., number of individuals, period of time, extent of habitat or habitat surrogate), the effect of this *take* on the species, and reasonable and prudent measures that are necessary and appropriate to minimize incidental *take* of a listed species. These reasonable and prudent measures, if complied with, will ensure that taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking under the ESA.

## **4.11 Reasonable and Prudent Measures**

Reasonable and prudent measures are non-discretionary measures to avoid or minimize take that must be carried out by the action agency in order for the incidental take statement to apply. The draft reasonable and prudent measures are normally provide to the action agency for their review before the final incidental take statement is issued to ensure that they are in fact “reasonable” for the action agency to implement. The project biologist may be tasked with assisting the action agency during the review of these measures. The purpose of the review is to ensure that the measures are clearly described and fully understood by the action agency, and to ensure that their implementation is feasible. The action agency may determine modification of the draft measures is needed, and request the Services to make revisions. Once the action agency and the Services have agreed to the measures and they are incorporated into the final biological opinion, they are binding.

To implement each of the reasonable and prudent measures, specific terms and conditions are also identified by the Services in a separate section of the incidental take statement. Like the reasonable and prudent measures, the action agency must comply with these specific terms and conditions, to be exempt from the prohibitions of Section 9 of the ESA.

## 4.12 Terms and Conditions

The terms and conditions section provides nondiscretionary requirements that an action agency must implement in order to ensure their exemption from Section 9 prohibitions. Essentially the terms and conditions outline the specific steps that are necessary to ensure that each of the reasonable and prudent measures is successfully implemented.

The draft terms and conditions are normally provided to the action agency for their review to determine if modification or clarification is needed, before including them in the final biological opinion. The project biologist may be tasked with assisting the action agency during the review of the terms and conditions. This purpose of the review is to ensure that the measures are clearly described and fully understood by the action agency, and to ensure that their implementation is feasible. Once terms and conditions have been included in the final biological opinion, they are considered binding.

## 4.13 Conservation Recommendations

Conservation recommendations included in a biological opinion are discretionary action agency activities to further avoid or minimize adverse effects on listed species or critical habitat resulting from a proposed action, to help implement recovery plans or to develop information. The Services request that they be informed if and when the recommendations are implemented. Action agencies may or may not choose to implement the suggested conservation recommendations.

## 4.14 Reinitiation Notice

If the amount or extent of incidental *take* allowed in the incidental take statement is exceeded, the action agency must reinitiate consultation and provide an explanation of the causes of the taking. Specifically, the reinitiation notice informs federal agencies that they are required to reinitiate consultation with the Services if any of the following conditions apply:

- The amount or extent of incidental *take* is exceeded
- New information reveals potential effects of the agency action on listed species or critical habitat in a manner or to an extent not considered in this opinion
- The agency action is subsequently modified in a manner that results in an effect on the listed species or critical habitat not considered in this opinion

- A new species is listed, or critical habitat is designated, that may be affected by the action

## **4.15 Literature Cited**

All of the personal communications and literature citations in the biological opinion are compiled into a standard reference list.

