



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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September 19, 2016

MEMORANDUM FOR: West Coast Region

FROM: Barry A. Thom
Regional Administrator

SUBJECT: Guidance for Addressing Climate Change in West Coast Region
Endangered Species Act Section 7 Consultations

The species listed under the Endangered Species Act (ESA) that we work to protect and recover are under increasing threat from climate change. In the oceans, changes related to climate are likely to affect species' distribution, abundance, interactions with other species, and community structure. Freshwater streams important to anadromous fish already face increased frequencies and intensities of floods, droughts, summer low-flows, and stressful water temperatures in many locations. Estuaries may experience changes in habitat quality and productivity related to changes in freshwater flows, nutrient cycling within an estuary and the adjacent coastal ocean, sediment delivery, sea level rise, and storm surges. Species may be restricted to a subsection of current habitat at certain times of year, or driven into habitat not currently occupied. Some of these environmental changes have already begun (e.g., rising sea levels and rising annual stream temperatures). Because of the physical and biological changes already observed, and the likelihood that change will continue and may accelerate, it is critical that our ESA section 7 consultations consider climate change.

The West Coast Region (WCR) has been analyzing the impacts of climate change on listed species and designated critical habitat in many ESA consultations. The *Climate Change in WCR Section 7 Consultations Guidance* (Attachment 1) is intended to make our analyses more consistent and deliberate across the WCR. It builds on the recently-issued *NMFS National ESA and Climate Change Guidance* (NMFS 2016) and is cross-referenced with *WCR's Revised Guidance on ESA and EFH Consultations* (Thom 2016). Three additional sources of information help us incorporate climate change information into ESA section 7 consultations: the accompanying *White Paper* (Attachment 2), *WCR Climate Change Section 7 Toolkit* and *Examples of Climate Change Status Section Descriptions* (both provided as hyperlinks to the *Climate Change in WCR Section 7 Consultations Guidance* and *White Paper*). Together, these documents provide non-regulatory, interpretive guidance that is not intended to be binding on members of the public or the agency.

Climate change presents a large challenge to us in conserving listed species and their habitat. This guidance will help us meet this challenge in our ESA section 7 work more effectively and efficiently, enabling us to better assist Federal action agencies in assessing the impacts of their proposed actions on listed species and habitat in a changing climate. In addition, this guidance will help us assist Federal action agencies to design their projects to reduce climate change impacts to listed species and habitat while increasing species resilience to climate change.



Attachments:

- 1) Climate Change in West Coast Region Section 7 Consultations – Guidance
- 2) White Paper: Methods and Technical Considerations for Treating Climate Change in West Coast Region Biological Opinions

Climate Change in West Coast Region Section 7 Consultations – Guidance

The appropriate depth of consideration of climate change will vary from consultation to consultation. Courts have invalidated biological opinions for failing to adequately consider climate change.¹ In keeping with NMFS’ obligation to “evaluate the best available science and information, even if it is uncertain,”² NMFS should identify relevant scientific data on climate change, recognize any attendant uncertainty, and explain what the agency concludes in light of those data and uncertainty. Also, when the best available science indicates climate change effects are a relevant concern when analyzing a proposed action, our biological opinions should explain the connection between such effects and whatever conclusions are drawn.³ Examples of methods for identifying best available climate science and applying it in a range of ESA decisions are published in the December 2013 special section of *Conservation Biology*, and we recently issued general Guidance for Treatment of Climate Change in NMFS Endangered Species Act Decisions⁴ (National Guidance). This WCR guidance document builds on our National Guidance and explains where and how to analyze and discuss climate change in a section 7 consultation. The guidance also identifies factors that should inform decisions about the appropriate scale and scope of the analysis in a particular consultation.

This guidance refers to additional sources of information that help us incorporate climate change information into ESA section 7 consultations, as described in the table below.

<u>Document</u>	<u>Full Name</u>	<u>Description</u>
National NMFS ESA Climate Change Guidance	Guidance for Treatment of Climate Change in NMFS Endangered Species Act Decisions ⁵	Seven ESA climate change policy statements, at least four of which affect ESA section 7 consultations.
WCR Section 7 Climate Change Guidance	Climate Change in West Coast Region Section 7 Consultations –Guidance (<i>this document</i>)	Summary of legal considerations and climate change factors that should be considered in WCR consultations.
WCR ESA and MSA Consultation Template	Guidance on ESA and MSA Consultations; and Preparation of ESA Biological Opinions, MSA EFH Recommendations, and FWCA Recommendations ⁶	The WCR biological opinion and EFH consultation “template” and checklist of considerations, including climate change.

¹See, e.g., *PCFFA v. Gutierrez*, 606 F.Supp.2d 1122, 1184 (E.D. Cal., 2008) (biological opinion invalidated because it did not discuss climate change data or state that NMFS considered it, and instead relied on data that assumed no change in hydrologic and climatic conditions).

² See *Ctr. for Biological Diversity v. Salazar*, 804 F. Supp. 2d 987, 1008 (D. Ariz. 2011).

³ See *Oceana v. Pritzker*, 2015 WL 5138389, __ F.3d __ (D.D.C, Aug. 31, 2015).

⁴ “Guidance for Treatment of Climate Change in NMFS Endangered Species Act Decisions,” Memorandum For E. Sobeck, Assistant Administrator for Fisheries from D. Weiting, Director, Office of Protected Resources, June 17, 2016

⁵ See footnote 4.

⁶ “Guidance on Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSA) Consultations; and Preparation of ESA Biological Opinions, MSA Essential Fish Habitat Recommendations, and Fish and Wildlife Coordination Act Recommendations,” Memorandum For West Coast Region from B. Thom, Regional Administrator, September 19, 2016

Supporting Information for WCR Guidance	White Paper: Methods and Technical Considerations for Treating Climate Change in West Coast Region Biological Opinions	Helps ensure that climate change is considered in a consistent manner in all WCR ESA consultations.
	West Coast Region Climate Change Section 7 Toolkit	References and web tools to assist with climate analyses (updated regularly).
	Examples of Climate Change Status Section Descriptions	Examples by species posted on WCR intranet (currently under development).

Climate change information will be important in the section 7 consultation process when: (1) considering initial effects determinations (“no effect,” “not likely to adversely affect,” and “likely to adversely affect”), (2) analyzing effects of actions in consultations and developing biological opinions, and (3) working with action agencies and applicants to reduce the impacts of their actions in a changing climate:

1) Making initial effects determinations

When assisting Federal action agencies in making initial section 7 effects determinations, or reviewing their effects determinations, we consider all the effects of an action, both direct and indirect. While doing this, staff should consider whether or not a changing climate would amplify the effects of the action such that the effect determination would change. The White Paper (section 2.0) provides important factors to consider such as the time period of the proposed action’s direct and indirect effects, as well as the ways in which an action’s effects could be amplified by climate change. If our analysis indicates an effects determination would be influenced by a changing climate, we should provide our rationale to the action agency (and applicant) and request they initiate the appropriate type of consultation (informal or formal).

2) Analyzing effects of actions in consultations and developing biological opinions

There is no way to prescribe the specific extent to which climate change should be addressed in any particular section 7 consultation. However, as described in section 2.2 of the White Paper, where the effects of an action are short in duration (less than a decade), we generally expect that little, if anything, will be gained by exhaustive, quantitative modeling attempts to link global climate model outputs through downscaling to specific species responses. In these cases, the uncertainty stemming from natural variability typically exceeds the expected signal of climate change making quantitative projections inconclusive. Nevertheless, recent extreme events in the historical record (*e.g.*, California’s extreme drought and high temperatures in the Columbia River in 2015) will need to be included in the range of climate conditions we may expect in the near future. Qualitative approaches will likely be most appropriate in considering these impacts. In contrast, when an action has long-term impacts on listed species or critical habitats (*e.g.*, impacts on a multi-decadal time scale), the interaction between the action’s effects and the climate-related impacts on species and their habitats warrants a more thorough consideration and may involve quantitative modeling of climate change impacts. The White Paper accompanying this

guidance provides examples of available resources (section 4.0) and examples of issues that will need consideration in these cases (section 2.0).

The following recommendations for addressing climate change are organized according to the WCR ESA and Magnuson-Stevens Fishery Conservation and Management Act (MSA) Consultation Template. As noted above, analytical background and other information is available in the White Paper ([link available here](#)) as well as in the WCR Climate Change Toolkit (Toolkit; [link available here](#)). There may be situations where climate change issues need to be addressed in letters of concurrence, such as describing changing environmental conditions in the action area due to climate change. If so, please refer to the appropriate sections below and to the White Paper for more information on how to consider the potential effects of an action in a changing climate.

Rangewide Status Section: Climate change is typically relevant in describing the status of species and critical habitats because its effects occur on a broad scale and will, therefore, typically affect a species and/or critical habitat across its range or habitat designation. The write-up in the status section should indicate how far into the future the available scientific information will allow us to meaningfully project climate change effects that are distinct from natural climate variability. This section of a biological opinion should consider the influence of the past, current, and predicted climate variability on the status of the species and its critical habitat.

Biological opinion authors should incorporate material regarding the relevance of climate change to the species as informed by the most recent status review and recovery plan, and updated with any additional best available information. In addition, to help staff address climate change in the biological opinion's status section, we are preparing example descriptions of the effects of climate change on most WCR listed species and critical habitats. Section 4.1 of the White Paper describes these examples ([which can be found here once available](#)). These short examples represent minimum descriptions of the expected effects of climate change on species status that you will want to consider including in the Status section of your biological opinion.

Also, authors should consider whether there is any climate change information available at a more local scale, such as the specific population, watershed, or river basin at issue in the consultation.

Environmental Baseline Section: Because climate change has already had impacts across our region, climate change is typically relevant when describing the environmental baseline for species and critical habitat in the action area. The environmental baseline section should cross-reference back to the status section and describe any local-scale climate effects and explain how those relate to the action area. However, this description may be improved if more detailed local-scale studies of climate change effects relevant to the action area are available.

In the future, action areas will likely experience additional changes in environmental conditions due to climate change. These changes may overlap with the direct and indirect effects of long term proposed actions. Thus, for long-term actions, we can no longer assume current environmental variability adequately describes environmental baseline conditions. Instead, we need to project baseline conditions into the future, synchronizing our projections with the

duration of the effects of the proposed action we are analyzing. Also, when cross-referencing to the Status section, remember that the Status section will typically consider climate change farther into the future than the environmental baseline section. The White Paper provides more information on time periods, on how effects overlap with climate changes in action areas, and related topics in section 2.0. The Toolkit describes documents and on-line resources of particular relevance to climate change effects in the Pacific Northwest and California.

Effects of the Action Section: Depending on the degree to which changing environmental conditions would amplify the proposed action's effects or if the action is specifically designed to respond to climate change impacts, climate change may be discussed in the effects section or in the integration and synthesis section of a biological opinion. Section 2.0 of the White Paper provides greater detail on determining whether or not climate change amplifies an action's effects.

Cumulative Effects Section: An analysis of effects in the action area from future activities that may contribute to climate change is typically unlikely to be meaningful given the scale at which climate change occurs, and the challenges associated with discerning the difference between climate change effects caused by future actions and those that are likely to occur as a result of past actions. This section should refer back to any local-scale climate change impacts referenced in the environmental baseline section and note that some may be cumulative effects. The WCR ESA and MSA Consultation Template provides language to address climate change in this section. The White Paper provides a brief description of the science behind some of these points in section 2.3.

Integration & Synthesis Section: Climate change can influence the conclusions in a biological opinion. When the proposed action's effects are integrated and synthesized with status, environmental baseline, and cumulative effects, it will be important to consider any aggregate effects and synergistic interactions with climate change factors. In particular, we need to ask and answer these questions: (1) Are the action's effects (adverse and beneficial) likely to be amplified⁷ by climate change? (2) If so, what are the consequences for the species or its critical habitat? This section would also call out any features of the action intended to adapt or be sensitive to future climate conditions. See section 2.4 of the White Paper for more information on the integration and synthesis section.

Reasonable and Prudent Alternative (RPA): If the biological opinion has one or more RPAs, we must explain how each RPA avoids jeopardy given the likely impacts of climate change we have identified in the preceding sections of the biological opinion. As described above, we need to consider any aggregate effects and synergistic interactions with climate change factors. In particular, we need to ask and answer the following questions: (1) Are the RPA's effects likely to be amplified⁸ by climate change? (2) If so, what are the consequences for the species and its critical habitat? Most importantly, explain how the RPA avoids jeopardy, adverse modification, or both, given the impacts of climate change we have identified.

⁷ In this context, we are including additive effects (climate-influenced status, environmental baseline, and cumulative effects).

Incidental Take Statements and Reinitiation: In some cases we may need to incorporate specific reinitiation triggers either in the incidental take statement or as part of the reinitiation section to address climate change issues. This should be done with caution as it is not a substitute for the lack of a thorough analysis of whether or not climate change will amplify⁸ the effects of a proposed action. We should work with action agencies and applicants to help them design their proposed actions with strategies and components to address likely climate change impacts (see section 3.0 of the White Paper for suggestions). However, even when proposed actions are designed to take climate change into account, uncertainty in future environmental conditions will remain. A reinitiation trigger based on specific changes in environmental conditions may be appropriate when our analysis is based on assumptions about uncertain future conditions. For example, a reinitiation trigger may be based on stream flows or stream temperatures to address cases where climate change results in unanticipated changes in these conditions. If you are contemplating the use of a reinitiation trigger specifically addressing climate change issues, please work with your supervisor, NOAA General Counsel, and your division section 7 coordinator.

Conservation Recommendations: Conservation recommendations present us with an opportunity to remind action agencies that they should be reviewing their programs and actions in light of climate change. For example, we might recommend that a land management agency review its management plans in light of climate change projections and consider the potential for amplified effects to listed species from their management actions. We could also recommend that a permitting agency review its permit programs to consider the potential for increased impacts to listed species and their habitats from permitted projects given likely changes in environmental conditions due to climate change.

3) Working with action agencies and applicants to reduce the impacts of their actions in a changing climate

Finally, because of the threat many of our species face from climate change, we may need to engage with action agencies and applicants (if any) in discussions prior to, and during, section 7 consultation to help them design their actions to be more resilient or robust to climate change with respect to impacts on listed species and critical habitats. This can be done through changes in project design, adaptive management approaches, specific triggers for operational or other changes, and even section 7 reinitiation triggers. When advising action agencies and their applicants during consultations, the appropriate approach will need to be chosen on a case-by-case basis; the White Paper (section 3.0) provides examples of approaches for creating “climate smart” proposed actions.