UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OREGON 97232

Refer to NMFS No: WCRO-2019-00623

November 25, 2019

Richard White
Bureau of Land Management
Cottonwood Field Office
2 Butte Drive
Cottonwood, Idaho 83522

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Eight Little Salmon River Subbasin Grazing Lease Renewals, HUC 17060210, Idaho and Adams Counties, Idaho

Dear Mr. White:

Thank you for your letter dated May 22, 2019, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for authorizing continued livestock grazing on eight Little Salmon River Subbasin allotments. The submittal included a final biological assessment (BA) that analyzed the effects of a bundled set of proposed actions on ESA-listed species and their designated critical habitat. In the BA, the Bureau of Land Management (BLM) made the following determinations: (1) The Papoose Creek, Lockwood Creek, and Trail Creek grazing leases/permits are likely to adversely affect Snake River Basin steelhead and their designated critical habitat; (2) the Sheep Mountain, North Fork, Fall Creek, Little Elk, and Osborn Individual allotment leases/permits are not likely to adversely affect Snake River Basin steelhead or their designated critical habitat; and (3) the proposed actions are not likely to adversely affect Snake River spring/summer Chinook salmon and their critical habitat.

In this biological opinion (Opinion), NMFS concludes that the Papoose Creek, Lockwood Creek, and Trail Creek grazing authorizations, as proposed, are not likely to jeopardize the continued existence Snake River Basin steelhead or result in destruction or adverse modification of designated critical habitat. NMFS also concurs with BLM that the Sheep Mountain, North Fork, Fall Creek, Little Elk, and Osborn Individual allotment authorizations are not likely to adversely affect Snake River Basin steelhead or their designated critical habitat; and the proposed actions are not likely to adversely affect Snake River spring/summer Chinook salmon or their designated critical habitat. Rationale for our conclusions is provided in the enclosed Opinion for steelhead and their critical habitat and enclosed concurrences for steelhead, spring/summer Chinook salmon and their critical habitat.

As required by section 7 of the ESA, NMFS provides an incidental take statement (ITS) with the Opinion. The ITS describes reasonable and prudent measures (RPM) NMFS considers necessary or appropriate to minimize the impact of incidental take associated with these actions. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the BLM must comply with to carry out the RPM. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.

Please contact Bob Ries, Northern Branch Office, 208-882-6148, bob.ries@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: C. Johnson – BLM
K. Fitzgerald – USFWS
M. Lopez – NPT

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion

Little Salmon River Subbasin Grazing Lease Renewals

NMFS Consultation Number: WCRO-2019-00623

Action Agency: Bureau of Land Management, Cottonwood Field Office

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical
Snake River Basin steelhead (*Oncorhynchus mykiss*)	Threatened	Yes	No	Yes	No
Snake River spring/summer Chinook salmon (*O. tshawytscha*)	Threatened	No	No	No	No

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

Issued By:

Michael P. Tehan
Assistant Regional Administrator

Date: November 25, 2019

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

ACRONYMS

ACRONYMS	DEFINITION
AUM	Animal Use Month
BA	Biological Assessment
BLM	Bureau of Land Management
DEQ	Idaho Department of Environmental Quality
DMA	Designated Monitoring Area
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
HUC	Hydrologic Unit Code
ITS	Incidental Take Statement
LAA	Likely to Adversely Affect
LWD	Large Woody Debris
MPG	Major Population Groups
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NPT	Nez Perce Tribe
Opinion	Biological Opinion
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
PFC	Proper Functioning Condition
RPM	Reasonable and Prudent Measure
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
VSP	Viable Salmonid Population
BA	Biological Assessment
BLM	Bureau of Land Management

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

1.1. Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (Opinion) and incidental take statement (ITS) portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), and implementing regulations at 50 CFR 402.

We also completed an essential fish habitat (EFH) consultation on the proposed actions, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). A complete record of this consultation is on file at the Snake Basin Office, in Boise, Idaho.

1.2. Consultation History

The proposed actions were first introduced to NMFS as a preliminary biological assessments (BA) on July 10, 2014, and January 19, 2016 as BLM was developing their proposed actions. The preliminary BA contained a "may affect, not likely to adversely affect" determination for Snake River Basin steelhead, Snake River spring/summer Chinook salmon, and their designated critical habitat.

On May 8, 2018, the Bureau of Land Management (BLM) re-introduced the proposed actions to the U.S. Fish and Wildlife Service (USFWS) and NMFS by submitting a new draft BA via email correspondence. The BLM held a subsequent conference call with the USFWS and NMFS on May 15, 2018 to discuss the draft BA, individual allotments, and additional needs for a final BA. After reviewing the May 8, 2018 draft BA, NMFS informed BLM that more information was needed in order to determine the allotment-specific effects to ESA-listed salmonids and their associated critical habitat.

A series of conference calls were held between June 2018 and March 2019 to discuss ESA-listed species and critical habitat determinations per each allotment, monitoring needs and capabilities, fish sampling data, mapping/geographic information system needs, and specific usage of each allotment. In particular, NMFS sought clarification of potential grazing effects in allotments where cattle have access to streams that are designated as critical habitat or where steelhead are present. Revised versions of the BA were submitted on December 6, 2018 and February 22, 2019. In both instances, additional allotment-specific information was needed, as well as detailed monitoring guidelines. On May 22, 2019, the BLM submitted a final BA with a

"may affect, likely to adversely affect" determination for Snake River Basin steelhead and their associated critical habitat for the three allotments (Papoose Creek, Lockwood Creek, and Trail Creek) where cattle had access to streams supporting listed steelhead; a "may affect, not likely to adversely affect" determination for Snake River Basin steelhead and their associated critical habitat for the remaining allotments where no streams with steelhead or critical habitat were present; and a "may affect, not likely to adversely affect" determination for Snake River spring/summer Chinook salmon and their associated critical habitat for all eight allotments. Consultation was initiated on the same day that the final BA was received.

On November 5, 2019, a copy of the proposed actions and terms and conditions section of the draft Opinion were provided to Nez Perce Tribe (NPT) for their review and comment. The NPT did not provide comments to NMFS on this consultation. A complete record of this consultation is on file at the Snake Basin Office in Boise, Idaho.

1.3. Proposed Federal Actions

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies (50 CFR 402.02). For EFH, a federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a federal agency (50 CFR 600.910). The proposed actions are described in their entirety in the BA (BLM 2019), and are condensed in this biological opinion for the key features on which our analysis of effects (Section 2.5) relies. The proposed actions subject to this consultation are BLM's proposal to authorize continued livestock grazing on eight allotments located on BLM lands in the Little Salmon River drainage (Figure 1). The authorizations (referred to hereafter as "leases") would expire 10 years after their renewal. Grazing leases are designated areas on BLM lands that are leased by private parties to graze livestock on Federal land for a specified portion of the year. All of the proposed leases would be used for cattle grazing, and one lease would also be used for horse grazing.

1.3.1 Livestock Numbers and Periods of Use

The proposed actions authorize the type and number of livestock that will use the allotment, the period(s) of use, the allotment areas to be used, and the amount of usage allowed under each lease. The amount of usage is quantified as animal unit months (AUMs). One animal unit is the equivalent of one calf, paired with a mature cow, and 1 AUM represents the amount of forage consumed by a cow-calf pair in a single month. The proposed grazing use for each allotment and BLM's determinations of effect a described in Table 1. Three allotments contain streams that provide habitat for ESA listed fish, and the remaining five allotments contain streams that flow into waters that provide habitat for ESA listed fish downstream from the allotment. The BLM's determination of effect for each allotment and allotments where livestock have access to streams supporting anadromous fish are identified in Table 1.

The proposed actions consists of the following components: (1) Livestock numbers and season of use; (2) grazing standards, forage use criteria, and regulatory requirements; (3) conservation measures aimed at minimizing the impacts of livestock on riparian areas; and (4) monitoring and adaptive management procedures to adjust grazing practices if necessary to protect natural resources, including ESA-listed fish and their habitat.

We considered whether or not the proposed actions would cause any other activities and determined that it would not. Entities holding grazing leases under the proposed actions may also graze livestock on adjacent private lands. However, grazing on private land adjacent to BLM allotments would continue to occur regardless of whether or not the permittees are able to the use the BLM allotments. Since effects of grazing on adjacent private lands would occur regardless of the BLM grazing leases, the effects of future grazing activities on adjacent private lands are not effects that are caused by the proposed actions. For this reason, these effects are not considered in this Opinion.

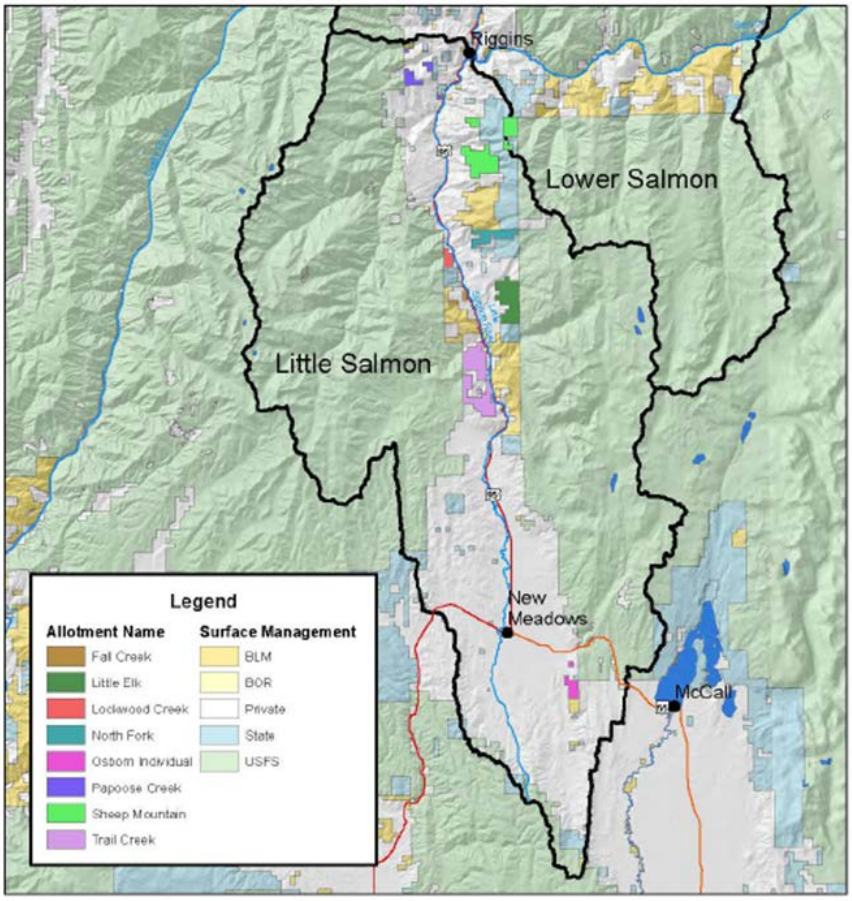
Table 1. Little Salmon Grazing Allotment Renewals.

Allotment Name	BLM Acres	Type of Livestock	AUMs	Season of Use	Steelhead habitat accessible to livestock[1]	BLM Effect Determination[2]
Papoose Creek	533	Cattle	13	4/1 – 6/3	0.6 miles	LAA
		Cattle	14	11/1 – 1/1		
Sheep Mountain	2,274	Cattle	134	5/15 – 7/15	NA	NLAA
		Cattle	80	10/10 – 11/15		
North Fork	840	Cattle	100	9/20 – 11/10	NA	NLAA
Lockwood Creek	279	Cattle	5	5/1 – 10/1	0.4 miles	LAA
		Horses	5	5/1 – 10/1		
Fall Creek	161	Cattle	12	5/1 – 9/1	NA	NLAA
Little Elk	1,490	Cattle	103	6/1 – 8/1	NA	NLAA
Trail Creek	2,480	Cattle	85	6/15 – 10/1	1.5 miles	LAA
Osborn Individual	438	Cattle	66	5/1 – 5/31	NA	NLAA

[1] Miles of stream in allotment potentially used by listed anadromous fish and accessible to livestock.

[2] Effect determination: LAA – "likely to adversely affect;" NLAA – "not likely to adversely affect.

Figure 1. Little Salmon River Grazing Allotments – Vicinity Map.



1.3.2 Grazing Standards, Forage Use Criteria, and Regulatory Requirements

To minimize adverse impacts of grazing on natural resources and to achieve desired conditions for resources affected by grazing, grazing practices are subject to the requirements of 43 CFR 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for grazing administration; provisions of the Cottonwood BLM Resource Management Plan (BLM 2009); Idaho Standards for Rangeland Health (BLM 1997), and all contractual provisions specific to each lease, such as fence maintenance (if applicable) and the authorized uses described above. These requirements include objectives, standards, and guidelines for protecting aquatic resources from excessive damage, while allowing some minor impacts to streams and riparian vegetation. Minor effects are allowed, for instance, only to the extent that they do not retard the attainment of riparian functions. The Resource Management Plan and Rangeland Health Guidance documents also describe a variety of habitat elements indicative of stream channel conditions and channel-forming processes to be conserved as an integral part of the proposed actions. The details of those requirements are noted or referenced in the BA but are not repeated in this Opinion.

Forage use criteria will be monitored by BLM at designated monitoring areas (DMAs), which are sites within an allotment that reflect impacts of grazing on sensitive areas or on the allotment as a whole. Forage use indicators consist of stubble height, browse utilization, and bank

alteration. Streambank alteration is an estimate of how much of the streambank has been disturbed by ungulate hooves; while stubble height is a measure of the herbaceous material that remains near the stream at the end of the grazing season. These indicators or the use criterion may be adjusted though the adaptive manage framework described below, if necessary, to assure resources of concern are being adequately protected and are meeting rangeland health standards. For the eight allotments BLM is proposing the following grazing use criteria:

- At the end of the grazing season or growing season, whichever is later, the average stubble height of riparian vegetation (grasses and grass-like species) is to be no less than 6 inches.

- Stream bank alteration along streams is to be less than ten percent at the end of the livestock grazing season.

- Utilization of the current leader growth of key riparian shrubs along streams is to be less than thirty percent at the end of the livestock grazing season.

1.3.3 Conservation Measures

- Fencing and herding will be maintained in present locations to exclude cattle from the mainstem Little Salmon River.

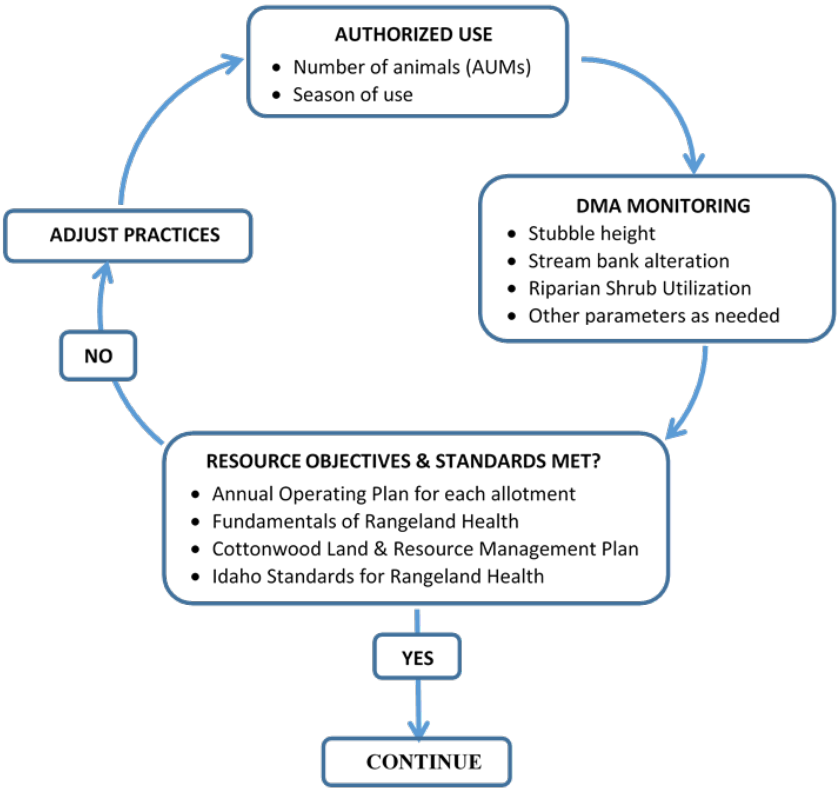
- Salt cannot be placed within 1/4-mile of any water source on public lands.

- If monitoring determines that grazing use is not allowing for maintenance or restoration of ESA-listed species habitat functions, the authorized officer shall take appropriate action as soon as practicable, but not later than the start of the next grazing year upon determining that existing grazing management needs to be modified.

1.3.4 Monitoring and Adaptive Management

The effects of grazing activities and the condition of rangeland and aquatic resources within an allotment can vary. As such, grazing allotments are managed by an adaptive management approach that is used to make adjustments to grazing practices as needed to meet resource objectives and applicable laws and regulations (Figure 2). If minor adjustments are needed, the proposed beginning and end dates may be changed by up to 15 days. The number of livestock can be modified each season, but the number of AUMs may not exceed the use specified in the permit. Grazing practices and authorized use must be changed by BLM if existing practices are not meeting environmental laws or natural resource objectives. Lease provisions may also be changed at the request of the lease holder, subject to approved by the BLM before changes can be made. Leases may also be terminated by BLM for reasons such as noncompliance with rules or unauthorized use.

Figure 2. Adaptive management framework for grazing allotments.



The following implementation and effectiveness monitoring will take place:

1. The BLM will monitor various grazing use indicators (e.g., stubble height, browse utilization and bank alteration) and other stream channel and riparian characteristics to assess impacts of the proposed grazing use at DMAs.

2. Allotments accessible to steelhead (Papoose, Trail Creek, and Lockwood allotments) will be monitored a minimum of every one to three years, except for Lockwood Creek allotment, which may be used intermittently, and monitoring would be done only when the allotment is in use. Monitoring includes establishment of a streambank and riparian monitoring site (designated monitoring area) and monitoring a minimum of every 1 to 3 years.

3. Allotments that do not contain streams accessible to steelhead (Sheep Mountain, North Fork, Fall Creek, Little Elk Creek, and Osborn) will be monitored at moderate or low intensity, depending on sensitivity of the stream channel to grazing effects to riparian areas, streambanks, and threatened and endangered species as follows:

    - Moderate intensity monitoring (e.g., low gradient B and C channels) and would include establishment of a streambank and riparian monitoring site (designated monitoring area) and monitoring a minimum of every 4 to 5 years.

- Low intensity monitoring (e.g., high gradient A channel, intermittent/perennial non-fish bearing stream), may include establishment of a photo point(s) and narrative description of channel, streambank, and riparian habitat, and monitoring would be conducted a minimum of every 10 to 15 years.

Adaptive management actions would be initiated if any of the following circumstances are found through monitoring:

1. If monitoring, surveys, or site inspections determines that significant risk of resource damage is occurring from livestock grazing, BLM may close portions of an allotment or modify authorized grazing. If warranted, needed changes to grazing would be implemented to support achievement of desired conditions, and re-initiation of consultation and/or coordination would occur with NMFS.

2. If grazing is causing a downward trend in stream channel, aquatic habitat, or riparian habitat indicators at the DMAs on Squaw Creek (Papoose Creek Allotment) or Trail Creek (Trail Creek Allotment), or Lockwood Creek (Lockwood Creek Allotment); BLM shall submit a report to NMFS summarizing monitoring results and also include an adaptive grazing strategy proposal to reduce the potential for further degradation. Measures to reduce degradation should include, but are not limited to establishing or adjusting season of use, livestock numbers, and/or implementation of additional minimization or avoidance measures.

3. If DMA monitoring detects aquatic and riparian degradation and downward trend attributed to livestock grazing and monitored sites are not supporting achievement of desired conditions for ESA-listed fish; a monitoring report would be prepared to support re-initiation of consultation with NMFS. At a minimum the report would include the following:

    a. Summary of authorized grazing use and actual use (e.g., AUMs, livestock numbers, grazing use dates, unauthorized grazing, etc.).

    b. Summary of monitoring data collected and allotment inspections.

    c. Summary of grazing use indicator monitoring data collected (e.g., stubble height, shrub utilization, streambank alteration, etc.).

    d. Adaptive management actions taken to date and any recommendations for future management actions to reduce impacts to ESA-listed fish and downward trends to aquatic and riparian habitats and designated critical habitat.

    e. Any relevant information regarding ESA-listed fish distribution, spawning locations, or watershed conditions that would modify assumptions used in the preparation of the BA or Opinion.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provides an Opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

The BLM determined the proposed lease renewals for Papoose Creek, Lockwood Creek, and Trail Creek allotments are likely to adversely affect Snake River Basin steelhead and their critical habitat. The BLM determined the proposed lease renewals for the Sheep Mountain. North Fork, Fall Creek, Little Elk, and Osborn Individual allotments are not likely to adversely affect Snake River steelhead and spring/summer Chinook salmon, and the critical habitat for these species. Our concurrence with the NLAA determinations is documented in the Section 2.12.

2.1. Analytical Approach

This Opinion includes both a jeopardy analysis and an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "to jeopardize the continued existence of" a listed species, which is "to engage in an action that would be expected, directly or indirectly, to 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" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This Opinion relies on the regulatory definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designation of critical habitat for (species) use the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a ''destruction or adverse modification'' analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this Opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The 2019 changes to the ESA regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR

44977), that definition does not change the scope of our analysis and in this opinion we use the terms "effects" and "consequences" interchangeably.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the species and critical habitat expected to be adversely affected by the proposed action.

- Evaluate the environmental baseline of the species and critical habitat.

- Evaluate the effects of the proposed action on species and their habitat using an exposure-response approach.

- Evaluate cumulative effects.

- In the integration and synthesis, 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.

- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2. Rangewide Status of the Species and Critical Habitat

This opinion examines the status of each species that would be adversely affected by the proposed actions. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the essential PBFs that help to form that conservation value.

The one species considered in this Opinion is Snake River Basin steelhead. Snake River Basin steelhead were listed as threatened on January 5, 2006 (71 FR 834) and protective regulations were promulgated on June 28, 2005 (70 FR 37160). The distinct population segment (DPS) for this species is composed of multiple populations which spawn and rear in different watersheds across the Snake River basin. Having multiple viable populations makes a DPS less likely to become extinct from a single catastrophic event (ICBTRT 2007). NMFS expresses the status of a DPS in terms of the status and extinction risk of its individual populations, relying on

McElhaney et al.'s (2000) description of a viable salmonid population (VSP). The four parameters of a VSP are abundance, productivity, spatial structure, and diversity. Final recovery plans for the species describe these four parameters in detail and the parameter values needed for persistence of individual populations and for recovery of the DPS (NMFS 2017).

We summarize the status and available information on the species (Table 2) based on the detailed information on the status of individual populations and the species as a whole provided by the recovery plan for Snake River spring/summer Chinook Salmon and Snake River Basin Steelhead (NMFS 2017) and status review for Snake River salmon and steelhead (NMFS 2016). These two documents are incorporated by reference here. We also identify the major threats or limiting factors for the DPS. Many individual populations are not meeting recovery plan abundance and productivity targets, such that the species remains threatened with extinction.

The Snake River Basin steelhead DPS is comprised of multiple populations that occupy distinct geographic areas. Under the classification scheme used by NMFS (2016), all steelhead in the action area belong to the Salmon River Major Population Group (MPG). Steelhead in the Little Salmon River drainage are one of 12 distinct populations within the Salmon River MPG.

NMFS (2016) tentatively rated the Little Salmon River population viability as possibly maintained, based on the spatial distribution of steelhead within the Little Salmon River drainage, and general trends for steelhead abundance and productivity in the Salmon River MPG, as no population estimates are available for the Little Salmon River population. Steelhead numbers for the Snake River Basin steelhead have drastically declined since 2014–2015, which represents a high point for the past decade. If the number of returning adults returning to the Salmon River does not return to levels seen in 2014, the viability rating might change from maintained to high risk.

Table 2. Status summary and limiting factors for Snake River Basin steelhead.

Status Summary	Limiting Factors
This DPS comprises 24 populations organized into five MPGs. Currently, five populations are tentatively rated at high risk of extinction, 17 populations are rated as maintained (moderate risk of extinction), one population is viable, and one population is highly viable. Although abundance has increased since the time of listing, four out of the five MPGs are not meeting the population viability goals laid out in the recovery plan (NMFS 2017). In order for the species to recover, more populations will need to reach viable status through increases in abundance and productivity. Additionally, the relative proportion of hatchery fish spawning in natural spawning areas near major hatchery release sites remains uncertain and may need to be reduced (NMFS 2016).	• Adverse effects related to the mainstem Columbia and Snake River hydropower system and modifications to the species' migration corridor. • Genetic diversity effects from out-of-population hatchery releases. Potential effects from high proportion of hatchery fish on natural spawning grounds. • Degraded freshwater habitat. • Harvest-related effects, particularly for B-run steelhead • Predation in the migration corridor.

2.2.1 Status of Critical Habitat

In evaluating the condition of designated critical habitat, NMFS examines the condition and trends of PBFs that are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBF essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 3). Critical habitat includes the stream channel and water column with the lateral extent defined by the ordinary high-water line, or the bankfull elevation where the ordinary high-water line is not defined.

Table 3. Types of sites, physical and biological features, and the species life stage each physical and biological feature supports.

Site	Physical and Biological Features (PBFs)	Species Life Stage
Snake River Basin Steelhead[a]		
Freshwater spawning	Water quality, water quantity, and substrate	Spawning, incubation, and larval development
Freshwater rearing	Water quantity & floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage	Juvenile development
	Natural cover	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover[c]	Juvenile and adult mobility and survival

[a] Additional PBFs pertaining to estuarine, nearshore, and offshore marine areas have also been described for Snake River steelhead. These PBFs will not be affected by the proposed actions and have therefore not been described in this Opinion.

Critical habitat for Snake River Basin steelhead was designated on September 2, 2005 (70 FR 52630). Critical habitat encompasses 25 subbasins in Oregon, Washington, and Idaho. Habitat quality in tributary streams varies from excellent in wilderness and roadless areas, to poor in areas subject to heavy agricultural and urban development (NMFS 2017). Reduced summer stream flows, impaired water quality, and reduced habitat complexity are common problems.

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor for juveniles and adults. However, several actions taken since 1995 have reduced the negative effects of the hydrosystem on juvenile and adult migrants. Examples include providing spill at each of the mainstem dams for smolts, steelhead kelts, and adults that fall back over the projects; and maintaining and improving adult fishway facilities to improve migration passage for adult salmon and steelhead. Across the designation, the current ability of PBFs to support the species varies from excellent in wilderness areas to poor in areas of intensive human land use.

2.2.2 Climate Change Implications for ESA-listed Species and their Critical Habitat

One factor affecting the status of the species and its critical habitat considered in this Opinion is climate change. Likely changes in temperature, precipitation, wind patterns, and sea-level height have implications for survival of Snake River Basin steelhead species in both its freshwater and marine habitats. During the next century average temperatures in the Pacific Northwest are projected to increase 3 to 10°F, with the largest increases predicted to occur in the summer (Mote et al. 2014). Decreases in summer precipitation of as much as 30 percent by the end of the century are consistently predicted across climate models (Mote et al. 2014). Precipitation is more likely to occur during October through March, less during summer months, and more winter precipitation will be rain than snow (ISAB 2007; Mote et al. 2014). Earlier snowmelt will cause lower stream flows in late spring, summer, and fall, and water temperatures will be warmer (ISAB 2007; Mote et al. 2014). Models consistently predict increases in the frequency of severe winter precipitation events (i.e., 20-year and 50-year events) in the western United States (Dominguez et al. 2012). The largest increases in winter flood frequency and magnitude are predicted in mixed rain-snow watersheds (Mote et al. 2014). In general, these changes in air temperatures, river temperatures, and river flows are expected to cause changes in salmon and steelhead distribution, behavior, growth, and survival, although the magnitude of these changes remains unclear.

Climate change could affect Snake River Basin steelhead in the following ways (NMFS 2017):

- Reduced summer and fall flows may reduce the quality and quantity of juvenile rearing habitat, strand fish, or make fish more susceptible to predation and disease.

- Overwintering survival may be reduced if increased flooding reduces suitable habitat.
- Timing of smolt migration may be altered due to a modified timing of the spring freshet, such that there is a mismatch with ocean conditions and predators.

- Higher temperatures while adults are holding in tributaries and migrating to spawning grounds may lead to increased prespawning mortality or reduced spawning success as a result of delay or increased susceptibility to disease and pathogens.

- Increases in water temperatures in Snake and Columbia River reservoirs could increase consumption rates and growth rates of predators and, hence, predation-related mortality on juvenile spring/summer Chinook salmon and steelhead.

Both freshwater and marine productivity tend to be lower in warmer years for Snake River Basin steelhead populations. Climate factors will likely make it more challenging to increase abundance and recover the species by reducing the suitable rearing areas and leading to a more limited run-timing under the warmer future conditions. This possibility reinforces the importance of achieving survival improvements throughout the species' entire life cycle, and across different populations since neighboring populations with different habitat may respond differently to climate change. Existing well-connected, high-elevation habitats on public lands will be important to supporting salmon and steelhead survival and recovery as the climate continues to warm (Martin and Glick 2008).

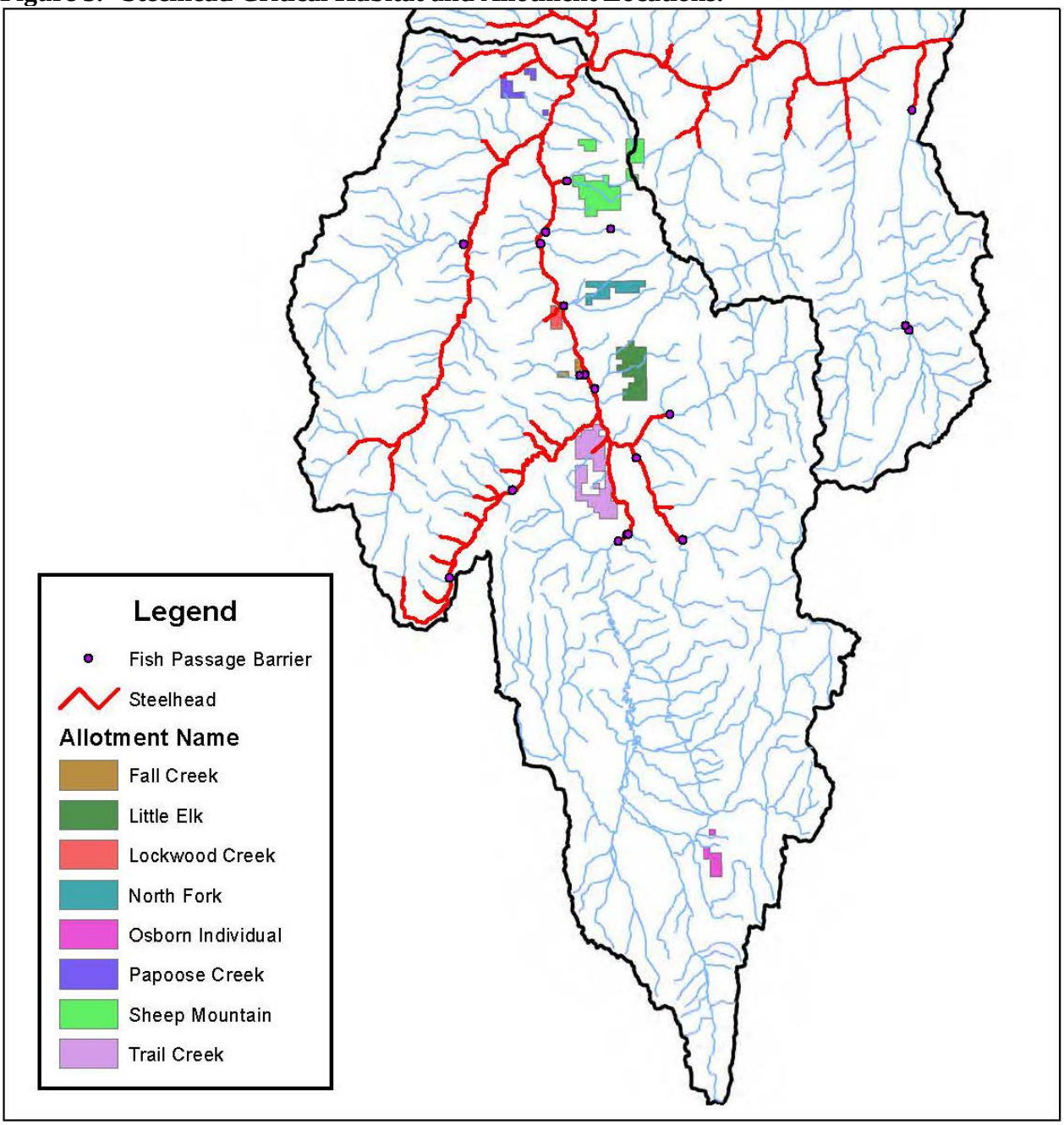
2.3. Action Area

"Action area" means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area for this Opinion is bounded by the Papoose Creek, Lockwood Creek, and Trail Creek allotments and includes all portions of the Little Salmon River where allotments are adjacent to the river; all Little Salmon River tributaries within the allotment boundaries, extending downstream to their mouths, and all riparian areas within the allotment boundaries. All of the named tributaries in the action area, with the exception of Fall Creek, have documented steelhead presence and all freshwater life history stages of Snake River Basin steelhead are present in the action area. Steelhead use of tributaries is typically limited to the mouths or lower reaches of the streams due to natural passage barriers formed by steep gradients, cascades, or falls (BLM 2019). The distribution of steelhead in the Little Salmon River drainage (Figure 3) is restricted to lower portion of the drainage due to a passage barrier located at river mile 24. Named tributaries within the action area are shown in Table 4. The action area also includes small, unnamed tributaries to the Little Salmon River that do not support salmonids, and the headwaters of the West Fork of Lake Creek, which drains into the Lower Salmon River.

Table 4. Fish-Bearing Streams and Steelhead Critical Habitat within Allotments.

Allotment Name	Stream Name	Hydrologic Unit Code (HUC)	Critical Habitat Present in HUC	Critical Habitat Within Allotment	Allotment Above Passage Barrier	Fish-bearing Streams Accessible to Cattle
Papoose Creek	Papoose Creek	170602100505	**X**			
	Squaw Creek		**X**	**X**		**X**
	Rapid River	170602100404	**X**			
Lockwood Creek	Lockwood Creek	170602100501	**X**	**X**		**X**
Trail Creek	Boulder Creek	170602100502	**X**			**X**
	Trail Creek	170602100203	**X**	**X**		**X**
	Round Valley Creek				**X**	
	Little Salmon River	1706021005	**X**	**X**		

Figure 3. Steelhead Critical Habitat and Allotment Locations.



2.4. Environmental Baseline

The "environmental baseline" includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

2.4.1 Baseline Conditions in Each Allotment

The proposed actions span numerous watersheds that have different environmental baselines. Descriptions of environmental baseline conditions are organized below by the allotment name and major tributaries within each allotment.

Papoose Creek Allotment

The Papoose Creek allotment has pastures in Little Salmon River face drainages, and the Squaw Creek, Papoose Creek, and Rapid River watersheds. Past and present grazing has occurred along 0.6 miles of Squaw Creek, with a few localized areas where cattle have used the stream for watering. No grazing has occurred adjacent to fish-bearing streams in the Papoose Creek and Rapid River drainages or along the Little Salmon River.

Squaw Creek

Approximately 0.6 miles of Squaw Creek is located within the allotment and the entire length of stream within the allotment is designated critical habitat for steelhead. Limiting factors for fish production in Squaw Creek include deposited sediment, high summer water temperatures, lack of high quality pools, human-caused barriers, and water diversions. Private land development, human-caused barriers, water diversions, roads, and livestock grazing have had varying levels of impacts on aquatic habitats within the lower reaches downstream from BLM grazing areas.

There are 27 recorded water rights on the streams within the Squaw Creek watershed. In addition, some water rights are recorded for springs, smaller feeder streams, and ground water. Filed water rights include irrigation, stockwater, domestic use, wildlife use, and two hydroelectric projects that have never been developed. Stream flows in lower Squaw Creek and lower Papoose Creek have been reduced by past and existing water withdrawals for irrigation. These include instream water diversion structures and irrigation ditches located throughout private land. The Riggins Water District has water rights on lower Squaw Creek.

The DMA for the allotment is located on the only stream segment in the allotment that is fish-bearing. Cattle have had access to the stream under past and existing grazing lease. The DMA was rated as properly functioning, with bank stability of 91 percent and a stable trend in stream conditions. The rating of "proper functioning condition" (PFC) is based on the BLM's protocol for assessing the condition of riparian areas and their influence on channel-forming processes (Dickard et al. 2015). A riparian area meeting PFC may have some minor alterations of riparian vegetation and streambank characteristics, but not to the extent that the channel morphology and shade are likely to be affected. Recent monitoring indicates the allotments are meeting criteria for stubble height, shrub utilization, and streambank alteration.

Rapid River

The majority of the Rapid River drainage is located on U.S. Forest Service lands (USFS) upstream from BLM lands. On USFS lands, the river is classified as "wild" under the Wild and Scenic River Act. A Wild and Scenic corridor extends 1/4-mile on each side of the river. Consequently, much of Rapid River has few human-caused alterations. Three tracts of private

land are located in this corridor. Human-caused environmental alterations within the Rapid River watershed are mostly downstream from the Forest Service boundary and have resulted from activities that include: roads, timber sales, livestock grazing, mining, silviculture, fire suppression, trails, recreation, watershed and fisheries projects, hatchery, hydroelectric project, water uses, and private land development (residences). The middle and upper portions of the watershed are primarily roadless and relatively undisturbed.

Lockwood Creek Allotment

The Lockwood Creek Allotment has been leased for cattle and horse grazing. Pastures occur within Little Salmon River face drainages and a portion of the Lockwood Creek watershed. Cattle and horses have had access to 0.4-mile of Lockwood Creek under past and present grazing lease; however, recent monitoring has not documented livestock grazing adjacent to Lockwood Creek.

Lockwood Creek

Lockwood Creek provides spawning and rearing habitat for rainbow/steelhead and has documented adult steelhead use. The watershed is primarily timbered with brush patches. Land uses which have impacted the drainage include logging, roads, and livestock grazing. A residence occurs near the mouth of this creek and a water diversion is used for irrigation of private lands. Very light use to no livestock use has occurred on BLM lands. Past flood events have resulted in severe channel and streambank scouring in Lockwood Creek (early 1990s); however, streambank and channel recovery has occurred within the past decades. The Lockwood Creek Allotment occurs with the burn perimeter of the 2018 Rattlesnake Creek Fire. Burn severity within the allotment ranged from unburned/very low to moderate. Monitoring of Lockwood Creek conducted in 2018 has documented that the riparian area burn severity was unburned/very low to low. Recent communications with the grazing lessee were that he has not grazed BLM lands for the past two decades (BLM 2019).

The BLM has a permanent substrate monitoring station located at stream mile 0.4. Substrate monitoring has documented cobble embeddedness levels of 40 percent, surface fines of 12 percent, and core sampling of spawning gravels found 21 percent less than 6.3 millimeter. The primary limiting factors for fish production include steep gradient, lack of good quality pools, channel and streambank scouring, lack of instream cover, and deposited sediment. DMA monitoring shows the stream is rated as properly functioning; habitat conditions are stable, and bank stability is 95 percent. Past and recent monitoring/surveys have met criteria for stubble height, shrub utilization, and streambank alteration, with very low or no grazing use.

Trail Creek Allotment

The Trail Creek Allotment has pastures along the Little Salmon River, within unnamed face drainages, and the Boulder Creek, Trail Creek, Round Valley Creek, and Brush Creek watersheds. The Little Salmon River drainage experienced an early January 1997, rain on snow event that caused severe flooding and debris flows in many of the streams in this drainage, including most streams within this allotment. The debris flows scoured the smaller headwater

tributaries and deposited sediment, large woody debris (LWD), and various sized rocks in Boulder Creek and Trail Creek.

Boulder Creek

Sediment delivery to streams within the Boulder Creek watershed has been increased from natural levels to varying degrees through human-related activities such as grazing, road development, timber harvest, recreation, fire suppression, and private land developments. These land-disturbing activities have varying effects on sediment production depending on the size, location, and duration of the disturbance. The primary ground-disturbing activities and chronic sediment sources within the drainage are associated with road development. Excess fine sediment deposition is a major limiting factor in portions of Boulder Creek. An extreme rain-on-snow event in 1997 caused debris flows that scoured some tributaries, and deposited the materials in Boulder Creek. Legacy grazing impacts to Boulder Creek exist in the lower watershed on private lands and USFS lands. In addition to fine sediment, other limiting factors for fish production include high summer water temperatures, low stream flows due to water diversions, and man-caused barriers (culverts) on small tributaries in the upper watershed.

Trail Creek

Trail Creek is the only fish-bearing stream in the allotment that has had grazing occurring along the stream. Fish habitat in Trail Creek has also been affected by land uses that include roads, timber harvest, water diversions, recreation, and debris flows in 1997, which deposited sediment, large woody debris, and various sized rocks in Trail Creek. Two residences occur on private lands in the lower reach. The primary limiting factors for fish production include deposited sediment, high summer water temperatures, low flows, lack of LWD, lack of good quality pools, and passage barriers created by culverts. Although Trail Creek has low flows, water temperature monitoring documented summer temperature of 16° to 17°C, and the 7-day average maximum temperature was 15° to 16°C. Waters with these temperatures may provide important thermal refugia in summer. In 2000 an open bottom culvert was installed at the US 95 crossing, which restored fish passage that was impaired by the previous culvert. In 2003, the BLM replaced a barrier culvert to enable fish passage at stream mile 1.3. A partial fish passage barrier culvert occurs on private lands at stream mile 1.8.

A DMA is located in Trail Creek 1.43 miles from the mouth, at a perennial fish-bearing stream reach. The DMA monitoring shows the stream is rated as properly functioning; habitat conditions are stable, and bank stability is 97 percent. Past and recent monitoring/surveys have met criteria for stubble height, shrub utilization, and streambank alteration, with low grazing use.

Round Valley Creek

The Round Valley Creek drainage occurs in the upper Little Salmon River subbasin, upriver from the cascade/falls in the narrow canyon at river mile 24. The falls are likely to be a barrier to upstream fish passage under all flow conditions. The lower reaches of Round Valley Creek meanders through meadows in a wide valley bottom while the upper reaches are more timbered and steeper gradient. Primary land uses affecting fish habitat in the lower reaches of these creeks

are irrigated pastures, hay fields, livestock grazing, and residences. Primary limiting factors are deposited sediment, elevated water temperatures, and low flows.

2.4.2 Effects of Climate Change

As discussed above in Section 2.2.2, climate change will affect baseline conditions in the future. Climate change is expected to alter hydrologic processes through decreased snowpack, early spring runoff, greater frequency of winter flooding, higher winter flows, and lower summer base flows (Rieman and Isaak 2010). Although not statistically significant, Klos et al. (2015) found positive trends in increasing spring precipitation, earlier peak streamflow, decreased April 1 snowpack, and longer fire seasons in Idaho. Effects of climate change will not be spatially homogenous. Higher elevation areas will be less affected because temperatures in these areas should be maintained well below freezing for most of the winter and early spring. Conversely, mid- to lower-elevation areas will be more susceptible to effects of climate change.

Decreased flows and increased air temperatures are likely to result in increased summer stream temperatures in the action area of 1° to 4°C (maximum weekly mean temperature) by the 2030 to 2069 period and 2° to 6°C by the 2070 to 2099 period (Beechie et al. 2013). Increased stream temperatures may result in: (1) An overall depletion of cold water mainstem areas for spawning, rearing, and migration; (2) variation in quality and quantity of tributary rearing habitat; (3) alterations to migration patterns; (4) accelerated embryo development; (5) premature emergence of fry; (6) increased competition with other fish species; and (7) decreased resilience to disease and other stressors. Climate change will exacerbate conditions in the action area where mainstem water temperatures already exceed criteria for salmonids and where cold water refugia associated with tributary streams are somewhat impaired by land uses such as water diversions or possibly point source discharges of heat. In addition, exposure to sub-optimal water temperatures make fish more vulnerable to sublethal or lethal effects associated with contaminant exposure.

2.5. Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed actions, including the consequences of other activities that are caused by the proposed actions. A consequence is caused by the proposed actions if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the actions may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed actions, we considered 50 CFR 402.17(a) and (b).

Effects of the proposed actions are assumed to be similar to the effects of past grazing in the action area since the proposed actions use the same allotment boundaries and would continue the same grazing practices, levels of use, monitoring, and adaptive management procedures as those recently and presently used. As such, the proposed actions are generally expected to maintain the habitat conditions and trends described above in the environmental baseline. Past monitoring is used as an indicator of grazing effects that are likely to occur under the proposed actions.

Effects of the proposed actions are also inferred from published scientific literature on grazing effects and site-specific information cited in the BA.

2.5.1 Effects on Critical Habitat

Numerous publications have documented the detrimental effects of livestock grazing on stream and riparian habitats (Johnson et al. 1985; Menke 1977; Meehan and Platts 1978; Cope 1979; American Fisheries Society 1980; Platts 1981; Peek and Dalke 1982; Ohmart and Anderson 1982; Kauffman and Krueger 1984; Clary and Webster 1989; Gresswell et al. 1989; Kinch 1989; Chaney et al. 1990; Belsky et al. 1997). These publications describe a series of synergistic effects that can occur when cattle over-graze riparian areas, including: (1) Reduction or elimination of woody and hydric herbaceous vegetation along a stream; (2) streambank collapse stream widening, and channel incision due to livestock trampling; (3) streambank erosion without vegetation to slow water velocities and hold the soil; (4) a lower water table elevation; and (5) loss of hydric, deeply rooted herbaceous vegetation that may be replaced by upland species with shallower roots and less ability to bind the soil. These effects have the potential to adversely affect steelhead critical habitat where cattle have access to streams and they concentrate their grazing and loafing in streamside areas.

Effects of cattle grazing in the action area are constrained primarily by the number of AUMs, season of use, grazing use criteria, and the location of the allotments with respect to streams and critical habitat. Monitoring and adaptive management are also used to ensure that grazing is meeting objectives for streams and riparian areas. The BLM will use stubble height, streambank alteration, and shrub browse to monitor the impacts of livestock on riparian areas and PFC assessments to evaluate grazing impacts on stream function. Goss and Roper (2018) found that stubble height or streambank stability were suitable indicators of grazing impacts on stream habitat attributes important to salmon and trout. In an analysis of 153 stream reaches subjected to grazing within the Interior Columbia Basin, they found that width-to-depth ratio, streambank angle, percent undercut banks, streambank stability, residual pool depth, percent pools, percent pool-tail fine sediments <2 millimeter, and wood frequency all trended toward lower-quality salmonid habitat as streambank alteration increased or as stubble height decreased. This is a key relationship that provides much of the rationale used in this effects analysis. In the effects analysis that follows, we assume that stream habitat attributes are not significantly impaired by grazing when both streambank alteration and utilization criteria (stubble height and/or shrub utilization) are met. The rationale for this assumption is explained below.

Stubble height has a direct relationship to the health of herbaceous riparian plants and the ability of the vegetation to provide streambank protection; to filter out and trap sediment from overbank flows; and in small streams to provide overhead cover (University of Idaho Stubble Height Review Team 2004; Roper 2016; Saunders and Fausch 2007). Multiple studies have evaluated minimum stubble heights necessary to protect stream habitat from the impacts of livestock grazing. Using the monitoring data from federal lands in the Columbia basin, Goss and Roper (2018) found that stubble height was related to streambank disturbance, and streambank disturbance began to increase when stubble heights fell below 10 inches. In the proposed actions, stubble height criteria is 6 inches, which might allow significant streambank alteration to occur if it were the only criterion used to manage grazing. Streambank alteration is used by

BLM in conjunction with stubble height and shrub utilization to limit physical changes to the stream that might otherwise occur with a 6-inch stubble height criterion alone.

Streambank alteration measures the amount of annual bank disturbance caused by livestock grazing in riparian areas, the levels of which can then be related to streambank stability and riparian vegetation conditions (Cowley and Burton 2005). Streambank alteration tends to increase with the number of cows present and the time spent by those cows in riparian areas. Alterations such as bank trampling can cause streams to widen with subsequent decreases in water depth and velocity. In low gradient channels, stream widening can cause mid-channel sediment deposition, which can further erode streambanks and reduce water storage. These impacts reduce the quality of fish habitat by reducing the physical heterogeneity of the stream channel. Cowley (2002) suggested that the maximum allowable streambank alteration necessary to maintain streambank stability is 30 percent, and that applying a 20 percent streambank alteration standard should allow streambanks damaged by grazing to recover. The streambank alteration criterion used in the proposed actions is 10 percent. Cowley (2002) cited studies to support a recommendation that "Ten percent or less alteration would seem to allow for near optimal recovery and should not retard or prevent attainment of resource management objectives." All streams designated as critical habitat within the proposed allotments are steep channels with largely step-pool or plane-bed morphology (after Montgomery and Buffington, 1997). These channel types have low or moderate sensitivity, respectively, to grazing effects on bank stability. Photos of the monitoring sites show representative examples of grazing impacts on the stream and riparian areas under present grazing practices (Appendix A).

Shrub utilization is the third type of criterion used to manage grazing effects. Burton et al. (2011) consider 40 percent shrub utilization to be light use. Because the BLM is requiring 30 percent maximum shrub use for riparian areas on these allotments, this use criterion is expected to keep riparian shrub use below levels detrimental to plant growth or survival. Photos of monitoring sites in designated critical habitat (Appendix A) show dense riparian growth under present grazing practices.

2.5.1.1 Impacts to Physical and Biological Features

The PBFs that could be affected by the proposed actions are water quality, forage, natural cover, riparian vegetation, substrate, and floodplain connectivity.

Water Quality. Continued grazing could affect water quality through nutrient enrichment from cattle manure or impacts to temperature if grazing reduces shade provided by riparian vegetation, or if stream widening increases the width to depth ratio or increases exposure to sunlight. Idaho Department of Environmental Quality (DEQ) monitoring in the Little Salmon River drainage shows excess nutrients in the meadow reaches in the vicinity of New Meadows, Idaho (DEQ 2006), which occurs miles upstream from the passage barrier at river mile 24. Excess nutrients are not identified by DEQ as a problem affecting the Little Salmon River or its tributaries downstream from river mile 24. Specific to the proposed allotments, because DMA monitoring shows no evidence that present grazing is causing stream widening or significant alteration of riparian vegetation, the continuation of present grazing practices under the proposed actions are unlikely to cause significant changes in shade or water temperature. Similarly, since riparian

areas show little cattle use, nutrient enrichment from manure is likely to cause no more than small, localized increases in primary productivity.

Forage. Salmonids rely on terrestrial and aquatic invertebrates as a food source. Terrestrial invertebrates fall into streams from overhanging vegetation and aquatic invertebrates are supported by a complex food web that is supported by leaves and other organic materials from terrestrial sources and primary productivity from within the stream. Livestock grazing could affect inputs of terrestrial organic materials and invertebrates by altering riparian vegetation. Since monitoring of past grazing activities does not show a significant reduction in riparian vegetation, alterations in the inputs of invertebrates and organic materials are likely to be small, occurring only in the few locations where cattle have access to streams.

Nutrient enrichment from cattle manure is likely to increase primary productivity of the stream for short distances in a few locations, which may cause both qualitative changes in invertebrate composition and quantitative changes in invertebrate growth and productivity. These changes can be detrimental or beneficial to listed fish depending on the amount of nutrients added, downstream distance from the nutrient source, and environmental factors such as stream flow, water temperature, channel gradient, channel morphology, and water chemistry. In a study of nutrient enrichment by sewage inputs in a Potlatch River tributary, macroinvertebrate populations declined slightly within the first 200 meters below a sewage treatment plant, but the macroinvertebrate population fully recovered 2.5 kilometers downstream of the discharge point. Weight gain by juvenile steelhead in the enriched stream section appeared to be slightly higher than steelhead before enrichment. The amount of nutrients added to a stream by a sewage treatment plant is orders of magnitude larger than the amount of nutrients added by the limited number of cows and limited access to streams anticipated under the proposed actions. Therefore, nutrient enrichment from cow manure is likely to cause no more than minor, localized alterations of the macroinvertebrate forage base. Streams supporting anadromous fish are generally deficient in marine-derived nutrients that were historically provided by carcasses of anadromous fish that returned in much higher numbers than today (Thomas et al. 2003).

Based on minor alterations in riparian vegetation observed with grazing and the localized effects of nutrient enrichment, we anticipate no more than small, localized impacts to the forage PBF.

Substrate. Grazing can negatively impact stream substrate by increasing substrate fine sediment and cobble-embeddedness when livestock trample streambanks and/or when grazing has substantially reduced soil-stabilizing riparian vegetation. However, on the proposed allotments riparian vegetation and streambank conditions are generally good and functioning appropriately. Because riparian vegetation and streambank stability are properly functioning, continued grazing with a maximum of 10 percent streambank alteration is likely to maintain those conditions and contribute only a small amount of fine sediment to streams. The proposed actions will not likely result in a degradation in this PBF.

Natural Cover and Riparian Vegetation. Riparian vegetation provides cover for salmonids in the form of overhanging vegetation, undercut banks, and recruitment of logs that fall into the stream. As described previously, DMA monitoring shows no evidence that present grazing is causing significant alteration of riparian vegetation, and photos show little cattle use in riparian

areas. Based on the above considerations, continued grazing under the proposed actions is not likely to result in degradation of this PBF.

Water Quantity and Floodplain Connectivity. Riparian grazing can potentially reduce base flows in streams by increasing water yield and flashiness as a consequence of reduced vegetative ground cover and riparian vegetation. Grazing may also reduce the extent of floodplain inundation and recharge of shallow aquifers when impacts are severe enough to cause channel incision. On these allotments, however, those types of adverse effects apparently have not occurred under past grazing practices and are unlikely to occur in the future. The majority of tributaries in the action area are steep-gradient streams in narrow, V-shaped valleys that do not provide significant water storage due to the absence of large floodplain areas. Based on the above considerations, the proposed actions are not likely to result in degradation of this PBF.

2.5.1.2 Summary of Impacts to Physical and Biological Features

The proposed actions are likely to cause no more than relatively minor or localized effects on PBFs for the following reasons:

- The DMA monitoring shows that all monitoring sites are not exceeding grazing use criteria, stream habitat trends are stable, the streams are meeting PFC, and streambank stability is 90 percent or greater.

- Photos of DMAs located in critical habitat show few discernable effects of grazing in places where cattle have had access to streams.

- With the exception of Round Valley Creek and Little Creek, all other tributaries in the action area are steep channels in V-shaped valleys that are relatively insensitive to grazing effects. Both Round Valley Creek and Little Creek are miles upstream from the passage barrier in the Little Salmon River at river mile 24 and do not contain critical habitat for steelhead.

- Five of the eight allotments do not have streams designated as critical habitat within the allotment boundaries. Since these allotments are presently meeting all grazing use criteria, adverse effects on stream and riparian conditions are likely to be localized and have little to no influence on PBFs in downstream locations where critical habitat occurs.

2.5.2 Effects on ESA-listed Species

Within the action area, Lockwood Creek, Squaw Creek (Papoose Creek Allotment), and Trail Creek are the only fish-bearing streams in the action area where cattle have access to stream segments accessible to listed steelhead. Where streams occupied by listed fish are accessible to cattle, individual fish may be disturbed by cattle presence; cows may trample redds; and fish may be affected by impacts to habitat (described above in Section 2.5.1). During the grazing season, adult steelhead will not be present in the action area, but steelhead redds and rearing juveniles are likely to be present.

2.5.2.1 Fish Disturbance and Redd Trampling

Livestock are likely to disturb individual juvenile steelhead when grazing, drinking, or loafing in or adjacent to streams occupied by steelhead. Disturbance of juvenile steelhead can lead to behavioral changes detrimental to steelhead growth or survival through alteration of feeding success, increased exposure to predators, or displacement into less suitable habitat. Although these effects can result in injury or death, we expect the juveniles affected by these actions to be able to use similar nearby cover to avoid injury or death. Streams supporting listed steelhead that are accessible to cattle on these three allotments are all relatively steep, with an abundance of cover provided by boulders, pools, overhanging banks, or woody debris.

The incubation period in steelhead redds within the action area typically occurs from March through June. Livestock standing in or crossing streams may trample redds if the grazing season begins before fish emerge from the gravels. The proposed grazing season overlaps the incubation period in all three streams accessible to steelhead and cattle. If redd trampling occurs, it may kill or injure all fish developing in the redd. The likelihood of redd trampling is determined by the joint occurrence of cattle using a stream or riparian area and steelhead redds being present at the same place and time. Although redd trampling is possible, the probability of trampling is low due to steep, confined channels that are poorly suited for spawning and moderate to low use of the riparian areas by cattle along stream segments where steelhead may occur.

The likelihood of adverse effects from disturbance and redd trampling are as follows:

Squaw Creek (Papoose Creek Allotment)

- Cattle are likely to use the riparian areas of Squaw Creek for watering.

- Juvenile steelhead are likely to be disturbed by cattle. The number of fish disturbed by cattle is likely to be very low since stream segments accessible to cattle are steep segments occupied primarily by Westslope cutthroat trout with very few steelhead.

- Redds may be trampled by cattle because the grazing season begins before fish have emerged from redds. The BA states that the risk of redd trampling is low because steelhead spawning occurs primarily downstream of the allotments and the channel is poorly suited for spawning due to steep gradient and confined channels.

- Riparian use by cattle is low to moderate, and likely to remain that way since there are only 14 AUMs authorized in the 533-acre allotment.

Lockwood Creek

- Cattle are unlikely to use the riparian areas for watering, loafing, or grazing due to the steep v-shaped canyon, and riparian area dominated by trees and shrubs that cattle and horses find unpalatable. In addition, only five cattle AUMs and five horse AUMs are

authorized in the 279 acre allotment. Recent monitoring has not documented livestock grazing adjacent to Lockwood Creek.

- The probability of fish disturbance and redd trampling are very low. Juvenile steelhead and redds may be present during the grazing season; however, the probability of cattle or horses occupying the riparian area is low as explained above, and the stream is poorly suited for spawning due to steep gradient and confined channels.

Trail Creek

- Cattle are likely to use the riparian areas for watering, loafing, or grazing. Light use has been documented in past grazing.

- Juvenile steelhead are likely to be disturbed by cattle. Stream segments accessible to cattle are occupied primarily by Westslope cutthroat trout and very few steelhead.

- Redds may be trampled by cattle because the grazing season begins before fish have emerged from redds. The risk of redd trampling is low because steelhead spawning occurs primarily downstream of the allotment and the average stream gradient is 8 percent, which is generally too steep for spawning.

- Riparian use by cattle is low and likely to remain that way since the allotment covers a large area (2,480 acres) with areas outside the Trail Creek drainage having more palatable vegetation.

2.5.2.2 Habitat-related Effects

The habitat-related effects of the actions described in Section 2.5.1.1 are relatively minor effects that have limited potential to harm or kill steelhead. The habitat effects described above are all localized impacts affecting a small portion of action area streams. Some of the habitat effects, such as altered shade/stream temperature, will likely be too small to affect conditions for fish. Localized changes to habitat that may affect listed fish consist of changes in forage, increased deposition of fine sediment, and reduced cover arising from alteration of streambanks and riparian vegetation. These habitat effects are not severe enough to alter habitat-forming processes in a manner that would change the utility of the affected streams for spawning and rearing, but they may adversely affect individual fish in small sections of stream through the following mechanisms:

- Increased exposure of juveniles to predators from reduced cover, or changes in feeding behavior in response to alterations in food availability, and qualitative changes in prey species or their changed susceptibility to predation.

- Decreased growth rates from changes in forage resulting from sediment deposition.

2.6. Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal actions subject to consultation (50 CFR 402.02 and 402.17(a)). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

The action area includes parcels of state and private lands that are used primarily for logging, cattle grazing, recreation, private homes, and transportation. All of the ongoing activities affecting the environmental baseline are likely to continue. No specific state or private actions are known to be planned for the action area; therefore, only those general effects of ongoing activities described in the environmental baseline are reasonably certain to continue.

2.7. 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 actions are 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 diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

Snake River Basin steelhead inhabit streams and rivers in the Snake River (from Lower Granite Reservoir upstream to the Hells Canyon Dam and all accessible reaches in the Salmon and Clearwater River basins. A considerable portion of smolt production originates from small tributaries such as those in the action area. Steelhead abundance is presently near an all-time low due largely to several consecutive years of low adult returns from the ocean. The status of critical habitat for the designation varies from excellent in wilderness areas to poor in areas of intensive human land use. There have been improvements in the Federal Columbia River System which will likely produce some improvements for Snake River Basin steelhead. Climate change over the 10-year period of this consultation will likely worsen conditions but to an unknown degree.

The proposed actions allow for grazing that stem from up to 10 percent bank alteration, six-inch stubble height, and 30 percent shrub use. Goss and Roper (2018) looked at relationships between grazing criteria and stream condition in BLM and USFS grazing areas and found that these particular criteria are related to stream attributes and are generally sufficient for streams to maintain or improve habitat attributes affected by grazing. However, they also noted a large amount of variation in the relationship between measure cattle use and stream attributes such that efficacy of any particular grazing standards for protection of fish habitat varies in different settings. In the action area, streams are relatively insensitive to grazing impacts. Riparian areas in the action area are located almost entirely in steep canyons that have little or no floodplain

adjacent to the channel. Cattle tend to congregate on relatively flat terrain that has shade and a nearby water source (George et al. 2007), which is often associated with riparian floodplains or wide valley bottoms that are present in the action area. Monitoring in the action area shows there has been little cattle use along the streams, which is expected in riparian areas with steep topography. Steeper streams are also less sensitive to grazing impacts because the high transport energy of the stream inhibits deposition of fine textured soils, which are easily disturbed by cattle. Clary and Webster (1989) noted that stream channels in narrow valleys occupied by woody species are "armored by rocks providing resistance to erosion and trampling damage."

Overall baseline conditions in the action area watersheds show some indication of elevated sediment deposition, elevated water temperatures, low flow, and a lack of LWD; all of which are related to factors other than BLM grazing. Riparian conditions in the allotments are relatively good, indicating that the proposed grazing standards, grazing intensity, and seasons of use have been maintaining proper stream function. Monitoring of present grazing use indicates that the actions have minor and localized effects on critical habitat. The proposed actions have little potential to change characteristics of critical habitat or to change abundance or survival of steelhead within the action area if the cattle continue to follow the same patterns of use that has occurred in recent decades. If patterns of cattle use continue as present, the proposed actions are likely to maintain similar habitat conditions, potential fish abundance, and fish distribution within the action area. Even though the grazing standards may allow for greater use of the riparian areas than occurs at present, impacts to the streams and riparian areas are unlikely to increase. The steep topography and predominance of woody vegetation in riparian areas (Appendix A) have likely limited grazing impacts to streams and riparian areas, and those limitations are likely to continue to limit grazing impacts caused by the proposed actions. Even though the grazing standards may allow for greater use of the riparian areas than occurs at present, impacts to the streams and riparian areas are unlikely to increase. The steep topography and predominance of woody vegetation in riparian areas (Appendix A) have likely limited grazing impacts to streams and riparian areas, and those limitations are likely to continue to limit grazing impacts caused by the proposed actions.

The effects of the actions on critical habitat are primarily minor changes in forage and reductions in cover. These habitat alterations could have minor effects on growth of a few juvenile steelhead and could result in some increased exposure to predators and incidence of predation. The number of juvenile steelhead affected would likely be very small given their low densities in the action area; limited stream length accessible to cattle; low to moderate use of riparian areas within the allotments; and monitoring data showing that allotments are meeting grazing criteria and also in proper functioning condition. Redd trampling has a very low probability of occurrence, because cattle numbers on the allotments are small for the area sizes; riparian/stream use by cattle is limited; and stream segments accessible to cattle are likely to be upstream of where steelhead spawn.

Because of the proven past success of standards on the allotments including the use of the 10 percent bank alteration and 6-inch stubble height, the actions are unlikely to reduce the survival or recovery of Snake River Basin steelhead in the action area. Since the survival and recovery of steelhead will not be reduced at the action area scale, it is unlikely that the survival and recovery of the Snake River Basin DPS will be reduced. Likewise, because effects on

designated critical habitat have been minimal in the past, and standards will be maintain or improved, it is unlike that the conservation value of PBFs will be reduced in the action area. Since they will not likely be reduced at the action area scale, they will not likely be reduced at the scale of the Snake River Basin steelhead critical habitat designation.

2.8. Conclusion

After reviewing and analyzing the current status of the listed species and critical habitat, the environmental baseline within the action area, the effects of the proposed actions, any effects of interrelated and interdependent activities, and cumulative effects, it is NMFS' Opinion that the proposed actions are not likely to jeopardize the continued existence of Snake River Basin steelhead, and is not likely to destroy or adversely modify their designated critical habitat.

2.9. Incidental Take Statement

Section 9 of the ESA and federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). On an interim basis, NMFS interprets "harass" to mean "Create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1 Amount or Extent of Take

The proposed action is reasonably certain to result in incidental take of ESA-listed steelhead. NMFS is reasonably certain the incidental take of juvenile steelhead and eggs will occur because livestock will graze alongside streams occupied by steelhead, resulting in harm or death from redd trampling, or juvenile steelhead may be harmed or killed by habitat-related effects described above. NMFS expects that behavioral changes of juvenile steelhead, due to cows grazing alongside streams, will be minor because habitat conditions in the action area should provide adequate escape cover to mitigate for localized disturbance. Effects due to disturbance of individual juvenile steelhead are therefore not reasonably certain to rise to the level of take.

It is not possible to observe the number of fish subjected to redd trampling or habitat-related impacts from grazing. Steelhead redds often cannot be identified because steelhead spawn during high-flow periods in spring when the stream bottom is not visible and evidence of redds becomes obscured by bedload movement and sediment deposition after the high-flow period ends. Incidental take from habitat effects cannot be estimated because there is no way to

distinguish between natural mortality and deaths caused by the action, or to distinguish fish losses due to emigration from fish losses from mortality. NMFS will therefore use the extent of streambank alteration as a surrogate for incidental take, pursuant to 50 CFR 402.14(i)(1)(i). Percent streambank alteration is the best indicator for the extent of incidental take. This is because: (1) The severity of habitat effects and likelihood of trampling a redd both increase in proportion to the amount of time cattle spend in close proximity to streams; (2) the amount of streambank alteration is correlated with the severity of grazing impacts to shade, riparian conditions, natural cover, and fine sediment and substrate; and (3) streambank alteration is measured by a standardized and repeatable methodology.

Extent of Take. The rationale in the effects analysis that was used to assess the effects of incidental take relies in part on the assumption that the proposed actions will continue to meet grazing-use criteria for streambank alteration since the proposed actions are a continuation of on-going grazing practices. Based on past compliance history with grazing-use criteria, we anticipate that as a rule, all three allotments (Papoose Creek, Lockwood Creek, and Trail Creek) will continue to meet the streambank alteration criterion of less than ten percent alteration at the end of the livestock grazing season, throughout the 10-year permit term. Recognizing that cattle behavior and range conditions vary in different years, the extent of take will be exceeded if streambank alteration exceeds 10 percent on more than one occasion in the same allotment. Such an exceedance would be detected by the BLM's proposed monitoring program, and reinitiation would be required if any of the three allotments fail to meet the streambank alteration criterion on more than one occasion.

2.9.2 Reasonable and Prudent Measures

"Reasonable and prudent measures" are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

The BLM shall:

1. Minimize incidental take from livestock grazing on the Papoose Creek, Lockwood Creek, and Trail Creek allotments by adjusting grazing use as needed, based on monitoring results.

2. Monitor impacts of grazing on streams that may be used by Snake River Basin steelhead to ensure that grazing practices are not retarding achievement of desired conditions of streams and riparian areas, and that the extent of take (streambank alteration) is not exceeded, and report the monitoring results to NMFS.

2.9.3 Terms and Conditions

The terms and conditions described below are non-discretionary, and BLM must comply with them in order to implement the RPMs (50 CFR 402.14). The BLM has a continuing duty to monitor the impacts of incidental take and must report the progress of the actions and their impact on the species as specified in this ITS (50 CFR 402.14). If BLM does not comply with

the following terms and conditions, the exemption from the incidental take prohibition (70 FR 37160, June 28, 2005) provided by the ITS in this Opinion would likely lapse.

1. The following terms and conditions implement RPM 1 (minimize take from livestock grazing):

    a. The BLM shall monitor end-of-season use criteria (stubble height, streambank alteration, and shrub browse) as follows: The Papoose Allotment and Trail Creek Allotment will be monitored a minimum of every 1 to 3 years; and when livestock grazing is occurring in the Lockwood Creek Allotment, monitoring will also be done a minimum of every 1 to 3 years.

    b. If monitoring at the DMAs on Squaw Creek, Trail Creek, or Lockwood Creek exceeds 10 percent streambank alteration or detects a stream channel, aquatic habitat, or riparian habitat downward trend attributed to authorized livestock grazing; BLM shall implement the following changes: adjust season of use, livestock numbers, and/or implementation of additional minimization or avoidance measures.

2. The following terms and conditions implement RPM 2 (monitoring and reporting):

    a. Report results of DMA monitoring for the Squaw Creek, Trail Creek, and Lockwood Creek allotments to NMFS each year after monitoring is done.

    b. If DMA monitoring detects aquatic and riparian degradation attributable to livestock grazing that is retarding attainment of desired conditions for ESA-listed fish, BLM will submit a report to NMFS describing the following:

        - Summary of authorized grazing use and actual use (e.g., AUMs, livestock numbers, grazing use dates, unauthorized grazing, etc.).

        - Summary of monitoring data collected and allotment inspections.

        - Summary of grazing use indicator monitoring data collected (e.g., stubble height, shrub utilization, streambank alteration, etc.).

        - Adaptive management actions taken to date and any recommendations for future management actions to reduce impacts to ESA-listed fish and to address downward trends and situations where grazing is retarding attainment of desired conditions in aquatic and riparian areas of streams occupied by steelhead.

        - Any changes in relevant information regarding ESA-listed fish distribution, spawning locations, or watershed conditions that were learned since completion of this consultation

c. Submit the report to NMFS no later than three months prior to the start of the next grazing season.

2.10. Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed actions on listed species or critical habitat or regarding the development of information (50 CFR 402.02). No conservation recommendations are identified for this action due to the small amount of influence BLM lands have on habitat conditions in the action area.

2.11. Reinitiation of Consultation

This concludes formal consultation for the permitting of grazing activities on the Papoose Creek, Squaw Creek, and Trail Creek Allotments.

As 50 CFR 402.16 states, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

2.12. "Not Likely to Adversely Affect" Determinations

The BLM determined that all eight allotments are NLAA Snake River spring/summer Chinook salmon or their critical habitat; and that five of the allotments (Table 5) are NLAA Snake River Basin steelhead or their critical habitat. NMFS concurs with BLM's determinations. The rationale for NMFS' concurrence is explained below.

Snake River spring/summer Chinook salmon

Effects of the proposed actions on critical habitat for spring/summer Chinook salmon are insignificant because: (1) There are no streams designated as critical habitat for Snake River spring/summer Chinook salmon in any of the eight allotments, and fencing prevents cattle access to the Little salmon River; (2) all allotments are meeting criteria for shrub, stubble height, and streambank alteration; and (3) grazing effects in allotments meeting all grazing criteria are local effects that would not be noticeable in designated critical habitat outside the allotments.

Effects of the proposed actions on spring/summer Chinook salmon are insignificant because: (1) Chinook salmon do not occur in any of the fish bearing streams in the allotments due to passage barriers or steep gradients that are unsuitable for Chinook salmon; (2) no Chinook

salmon spawning or rearing has observed in any tributaries to the Little Salmon River downstream from allotments; (3) fencing prevents cattle access to the Little Salmon River; (4) all allotments are meeting criteria for shrub, stubble height, and streambank alteration; and (5) grazing effects in allotments meeting all grazing criteria are local habitat effects that would not have a noticeable effect on chinook salmon outside the allotments.

Snake River Basin steelhead

Effects of the proposed actions on critical habitat for Snake River Basin steelhead on the five allotments are insignificant because: (1) There are no streams designated as critical habitat for Snake River Basin steelhead in any of the five allotments, and fencing prevents cattle access to the Little salmon River; (2) all allotments are meeting criteria for shrub, stubble height, and streambank alteration; and (3) grazing effects in allotments meeting all grazing criteria are local effects that would not be noticeable in designated critical habitat outside the allotments.

Effects of the proposed actions on Snake River Basin steelhead are insignificant because: (1) With the exception of Hard and Hazard Creeks, steelhead do not occur in any of the fish-bearing streams in the Sheep Mountain, North Fork, Fall Creek, Little Elk, or Osborn Individual allotments due to passage barriers.; (2) in Hard and Hazard Creeks, cattle do not have access to fish bearing-streams; (3) fencing prevents cattle access to the Little Salmon River; (4) all allotments are meeting criteria for shrub, stubble height, and streambank alteration; and (5) grazing effects in allotments meeting all grazing criteria are local habitat effects that would not have a noticeable effect on steelhead outside the allotments.

Table 5. Allotments with "Not Likely to Adversely Affect" Determinations for Snake River Basin Steelhead.

Allotment Name	Stream Name	HUC	Critical Habitat Present in HUC	Critical Habitat Within Allotment	Allotment Above Passage Barrier	Fish-bearing Streams Accessible to Cattle
Sheep Mountain	Sheep Creek	170602100503	**X**		**X**	
	Hat Creek		**X**		**X**	
	West Fork Lake Creek	170602090205	**X**		**X**	
North Fork	North Fork Rattlesnake Creek	170602100501			**X**	**X**
	Rattlesnake Creek		**X**		**X**	**X**
Fall Creek	Fall Creek	170602100501			**X**	
Little Elk	Little Elk Creek	170602100501			**X**	**X**
	Elk Creek				**X**	**X**
	Hard Creek	170602100301	**X**			
	Hazard Creek	170602100302	**X**			
Osborn Individual	Little Creek	170602100104			**X**	

3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these DQA components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

3.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this Opinion are the BLM. Other interested users could include point source dischargers. Individual copies of this Opinion were provided to the BLM. The format and naming adheres to conventional standards for style.

3.2. Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

3.3. Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including NMFS' ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this Opinion and EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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APPENDIX A

Photos of Monitoring Sites

Figure A1. Squaw Creek DMA, Looking Upstream, Stream Mile 4.0 Papoose Allotment (9/29/15).

Figure A2. Squaw Creek DMA, Looking Downstream, Stream Mile 4.0 Papoose Allotment (9/29/15).

Figure A3. Sheep Creek DMA, Looking Upstream, Stream Mile Sheep Mountain Allotment (10/24/13).

Figure A4. Sheep Creek DMA, Looking Downstream, Stream Mile 3.1 Sheep Mountain Allotment (10/24/13).

Figure A5. Lockwood Creek DMA, Looking Upstream, Stream Mile 0.4 Lockwood Creek Allotment (11/19/18).

Figure A6. Lockwood Creek DMA, Looking Downstream, Stream Mile 0.4 Lockwood Creek Allotment (11/19/18).

Figure A7. Fall Creek DMA, Looking Upstream, Stream Mile 1.5 Fall Creek Allotment (4/22/15).

Figure A8. Fall Creek DMA, Looking Downstream, Stream Mile 1.5 Fall Creek Allotment (4/22/15).

Figure A9. Trail Creek DMA, Looking Upstream, Stream Mile 1.3 Trail Creek Allotment (10/23/13).

Figure A10. Trail Creek DMA, Looking Downstream, Stream Mile 1.3 Trail Creek Allotment (10/23/13).

Figure A11. Unnamed Tributary, Looking Upstream, Stream Mile 0.58 Osborn Individual Allotment (8/4/15).

Figure A12. Unnamed Tributary, Looking Downstream, Stream Mile 0.58 Osborn Individual Allotment (8/4/15).