UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Blvd., Suite 1100
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Refer to NMFS No: WCRO-2021-03078

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April 8, 2022

Charles A. Mark
Forest Supervisor
Salmon-Challis National Forest
1206 S. Challis Street
Salmon, Idaho 83467

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Ongoing Grazing Actions on the Camas Creek Allotment, Lower Camas Creek – HUC 1706020603, Upper Camas Creek – HUC 1706020601, Lemhi County, Idaho (One project)

Dear Mr. Mark:

Thank you for the Salmon-Challis National Forest (SCNF) letter of November 9, 2021, 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 grazing on the Camas Creek Allotment.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act [16 U.S.C. 1855(b)] for this action. However, after reviewing the proposed action, we concluded that there are no adverse effects on EFH. Therefore, we are hereby concluding EFH consultation.

In this biological opinion (opinion), NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River Basin steelhead. NMFS also concurs with the SCNF determination that the proposed action may affect, but is not likely to adversely affect, Snake River spring/summer Chinook salmon, and designated critical habitats for Snake River Basin steelhead and Snake River spring/summer Chinook salmon.

The SCNF determined the proposed actions would have no effect on Snake River sockeye salmon or its designated critical habitat. "No effect" determinations under section 7 of the ESA are the province of action agencies, which may make such findings without seeking the agreement of NMFS. It is NMFS procedure to not provide any written concurrence with a federal action agency's determination that its action will have "no effect" on any ESA-listed species or designated critical habitat. Therefore, effects to sockeye salmon and its designated critical habitat will not be considered in the attached opinion.

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 this action. The ITS establishes terms and conditions, including reporting requirements, that the SCNF, including any permittees who performs or oversees the implementation of any portion of the action, in order to be exempt from the prohibitions of section 9 of the ESA.

Please contact Kimberly Murphy**,** consulting biologist**,** in the Southern Snake Branch of the Snake Basin Office at (208) 768-7714 or at kimberly.murphy@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: K. Povirk – SCNF
K. Krieger – SCNF
S. Fisher – USFWS
C. Colter – SBT

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response

Camas Creek Allotment, Lower Camas Creek – HUC 1706020603,
Upper Camas Creek – HUC 1706020601, Lemhi County, Idaho

NMFS Consultation Number: WCRO-2021-03078

Action Agency: USDA Forest Service, Salmon-Challis National Forest

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 Habitat?
Snake River Basin steelhead (*Oncorhynchus mykiss*)	Threatened	Yes	No	No	NA
Snake River spring/summer Chinook salmon (*O. tshawytscha)*	Threatened	No	NA	No	NA

Fishery Management Plan That Identifies EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	No	No

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

Issued By: Michael P. Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Date: April 8, 2022

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Allotment	Camas Creek Grazing Allotment
BA	Biological Assessment
CFR	Code of Federal Regulations
DMA	Designated Monitoring Area
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FR	Federal Register
FS	Forest Service
FSH	Forest Service Handbook
FSR	Forest Service Roads
GES	Greenline Ecological Status
GGW	Greenline to Greenline Width
HUC	Hydrologic Unit Code
ICTRT	Interior Columbia Technical Recovery Team
IDFG	Idaho Department of Fish and Game
ISAB	Independent Scientific Advisory Board
ITS	Incidental Take Statement
MIM	Multiple Indicator Monitoring
MPG	Major Population Group
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NFS	National Forest System
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
Opinion	Biological Opinion
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
PNC	Potential Natural Community
RHCA	Riparian Habitat Conservation Area
RMO	Riparian Management Objectives
RPM	Reasonable and Prudent Measure
SCNF	Salmon-Challis National Forest
Services	NMFS and USFWS
SR	Snake River
SRB	Snake River Basin
USBWP	Upper Salmon Basin Watershed Project
U.S.C.	U.S. Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VSP	Viable Salmonid Population
W:D	Width to Depth Ratio

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

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.), as amended, and implementing regulations at 50 CFR 402.

We also reviewed the proposed action for potential effects on an essential fish habitat (EFH) consultation on the proposed action, 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. In this case, NMFS concluded the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

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). The document will be available within two weeks at the NOAA Library Institutional Repository (https://repository.library.noaa.gov/welcome). A complete record of this consultation is on file at NMFS' Snake Basin Office, Boise, Idaho.

1.2. Consultation History

On November 9, 2021, NMFS received a letter from the Salmon-Challis National Forest (SCNF) requesting ESA consultation on the effects of authorizing proposed grazing activities on the Camas Creek Allotment (Allotment). The biological assessment (BA) (USFS 2021) accompanying that letter described proposed livestock grazing activities, the environmental baseline, and the potential effects of those activities on Snake River Basin (SRB) steelhead, Snake River (SR) spring/summer Chinook salmon, and their designated critical habitats. In the BA, the SCNF determined that the proposed action "may affect," and is "likely to adversely affect" SRB steelhead. The SCNF has also determined that the action "may affect," but is "not likely to adversely affect" SR spring/summer Chinook, and designated critical habitat for both SRB steelhead and SR spring/summer Chinook. We previously consulted on grazing activities on the Allotment. The opinion on the previous consultation was completed on February 12, 2015 (NMFS tracking number 2014/1117). The SCNF has modified the proposal since that earlier consultation. Those modifications are described in section 1.3.4 below.

The draft BA for the Camas Creek Grazing Allotment was submitted to the Level 1 Team for review on August 23, 2021. NMFS provided comments to the SCNF on the draft BA on September 9, 2021, and discussed comments on the BA at the September 15, 2021, Level 1 meeting. The SCNF indicated that they would address all NMFS comments and submit a revised draft BA for additional review. A second draft BA was submitted on October 14, 2021. NMFS provided comments on the draft BA to the SCNF on October 29, 2021. Both agencies agreed with the approach to submit a final BA, but NMFS reserved the opportunity to request additional information, if necessary, to complete the consultation. The Allotment BA and request for consultation was received by NMFS on November 9, 2021. Consultation was initiated at that time.

NMFS shared the draft proposed action and proposed conservation measures with the SCNF on March 8, 2022. The SCNF suggested revisions to the draft opinion on March 21, 2022.

The SCNF's proposed authorization of cattle grazing on the Allotment would likely affect tribal trust resources. Because the action is likely to affect tribal trust resources, NMFS contacted the Shoshone-Bannock Tribes pursuant to the Secretarial Order (June 5, 1997). A copy of the draft proposed action and conservation recommendations were sent to the Shoshone-Bannock Tribes on March 8, 2022, with a request for comments. NMFS did not receive any response.

1.3. Proposed Federal Action

Under the ESA, "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). The Camas Creek Allotment is located on the Salmon-Cobalt and Middle Fork Ranger Districts approximately 65 air miles southwest of Salmon, Idaho, on National Forest System (NFS) lands. The Allotment is approximately 63,360 acres in size and approximately 13,100 acres of the Allotment fall within the Frank Church River of No Return Wilderness boundary. The Allotment falls within two fifth field hydrologic unit codes (HUC): Lower Camas Creek (HUC 1706020603) and Upper Camas Creek (HUC 1706020601) in Lemhi County, Idaho (USFS 2021).

There are several private inholdings within the Allotment containing approximately 776 acres. Some of these are fenced and others are not; livestock graze some of these private sections while they are grazing the Allotment. The Forest Service (FS) does not permit nor administer grazing on the private land. This Allotment contains several streams that have ESA-listed fish and designated critical habitats present. They will be discussed in more detail in Section 2.

Trailing off the Allotment may take place in the Upper Panther Creek (HUC 1706020309) and Morgan Creek (HUC 1706020117) watersheds. Trailing takes place in upland areas and on roads (Figure 1). Crossing of Panther Creek on designated fords is also allowed and analyzed in the BA.

This consultation covers the proposed grazing period from the completion of this signed opinion through the end of the 2036 grazing season, so long as: (1) grazing activities on the Allotment are consistent with the grazing management described in this document; (2) reissuance of permits will be identical to, or more conservative than, the grazing management described in this document so as to not trigger the need to reinitiate consultation at that time; and (3) other triggers requiring reinitiation of consultation are not exceeded. This consultation covers the issuance of grazing permits following expiration or waiver as long as Conditions 1 and 2 above are met. The regulations for consultation require the action agency to reinitiate consultation if certain triggers in Condition 3 are met (see Section 2.11) (50 CFR 402.16).

Current Permit: Permitted grazing on this Allotment provides for grazing up to 132 cow-calf pairs with a grazing season of June 1 through October 15 for a total of 595 head-months. Consistent with direction provided in FS Handbook (FSH) 2209.13-10, an extension of grazing may be requested for a maximum of two weeks outside the dates on the term grazing permit. When considering the request, the District Ranger will follow Regional Forester direction as outlined, including compliance with the ESA Section 7 consultation requirements. An approved extension cannot result in more take than would otherwise be allowed. Regional Forester direction also indicates that use of extensions should be an exception rather than a standard practice. On this Allotment, it is not expected that a request for an extension will be received more than four years in ten. If extensions were to be granted, they would only occur in the Lower Silver Unit (early) year 1 before June 1, or year 2 before June 15, or Upper Silver Unit (late) after October 15.

1.3.1. Grazing System

The Camas Creek Allotment is managed under a single rotation (Table 1), but turnout in the spring is delayed by two weeks every other year to avoid grazing plants at the same time every year. As with any rotational grazing system, move times can be seasonally adjusted if prescribed move dates and/or move-triggers have been reached.

The Allotment is divided into five units including the Lower Silver Creek, Upper Silver Creek, West Fork, Camas Creek, and Castle Creek Units (Figure 1). Livestock do not graze the Camas Creek Unit, but trailing is authorized through it to access other units.

The Camas Creek Exclosure forms portions of the unit boundaries for the Lower Silver, West Fork, and Camas Creek Units (Figure 1). This exclosure, along with a natural barrier (i.e., topography in the form of steep slopes and short cliff sections), excludes approximately 1.6 miles of Camas Creek and approximately 1.1 miles of West Fork Camas Creek from livestock access (Figure 2).

The Camas Creek Unit is used for trailing livestock to the Castle Creek Unit. This supervised trailing will occur over a five-day period between July 7 and July 27, with potential for drift through August 5.

A rider camp is authorized on the Allotment near the Meyers Cove Corral, and up to five head of horses/mules may be kept in the corral. The camp may also be located near the junction of Forest Service Roads (FSR) 60258 and 60259. Up to two head of horses may be kept in the small corral located at this location; these two would count as part of the five total that could be on the Allotment. Riders are required to be on the Allotment 3 to 4 days per week, with the exception of when livestock are in the Castle Creek Unit, when they are required to be present daily.

Weaning of calves typically occurs between September 1 and September 20 each year and will occur in the Meyers Cove Corral in the Lower Silver Creek Unit. Cattle are trailed from the Upper Silver Creek Unit to Lower Silver Creek Unit as described in Section 1.3.1.2. The following rotation will be used on the Camas Creek Allotment.

Range readiness (bluebunch wheatgrass in the first boot stage or the appearance of Idaho fescue flowerstalks) will be monitored as necessary to determine if the on-date is appropriate. Adjustments to the on-date may be made if conditions warrant.

Annual use indicators (Section 1.3.6.3) will drive when unit moves, or when the off date occurs. Permittees are responsible for moving livestock to meet annual use indicators.

Table 1. Unit Rotations

<table>
<tr><th>Season</th><th>Year One (even years)</th><th>Year Two (odd years)</th></tr>
<tr><td rowspan="3">June –Late-July</td><td>Lower Silver Creek Unit</td><td>Lower Silver Creek Unit
(turn out will be at least 2 weeks later than the previous year)</td></tr>
<tr><td>West Fork Unit</td><td>West Fork Unit</td></tr>
<tr><td>Camas Creek Unit - trailing</td><td>Camas Creek Unit - trailing</td></tr>
<tr><td>Late-July – Mid-September</td><td>Castle Creek Unit</td><td>Castle Creek Unit</td></tr>
<tr><td>Mid-September – Mid-October</td><td>Upper Silver Creek Unit</td><td>Upper Silver Creek Unit</td></tr>
</table>

1.3.1.1.Entry on/Exit off the Allotment

Livestock are trucked onto the Camas Creek Allotment on or after June 1 and are unloaded into the Meyers Cove Corral, within the Lower Silver Creek Unit. Livestock are then let out of the corral once they are paired up and are dispersed into the Lower Silver Unit. The corral is outside of the Camas Creek exclosure and has no accessibility to Camas Creek.

When exiting the Allotment, livestock are gathered from the Upper Silver Unit and are trailed along the Silver Creek Road #60108 and the West Fork Camas Creek Road #60259 to the Meyers Cove Corral. Livestock are then loaded into trucks and/or trailers and trucked off the Allotment. Livestock may be trailed in one large bunch and several smaller bunches as they are gathered. All trailing will be supervised when moving along the road system to the Meyers Cove Corral. The bulk of the trailing will occur in one day, with stragglers being gathered and trailed for up to five days after.

Alternatively, livestock may also be trailed from the Upper Silver Unit to private property in the South Fork Moyer Creek area; two routes are used to access this property. Livestock will be trailed along Silver Creek Road #60108 to the Cabin Creek trail/road near Rabbits Foot Summit. The Cabin Creek trail/road affords no access to Cabin Creek because the trail follows an upland route. Livestock trail this route until it connects with Panther Creek Road #60055 about one half mile south of the mouth of Cabin Creek. From this point, livestock will follow one of two routes to access private land. After trailing across the Panther Creek Road, livestock are trailed across Panther Creek at a designated ford crossing (also used by Forney permittees) near McGowan Basin. Livestock continue along an undeveloped road to Moyer Basin private property, adjacent to the South Fork of Moyer Creek. Alternately, livestock may trail up the Silver Creek Road to its intersection with the Panther Creek Road #60055. Livestock trail up the Panther Creek Road, cross the culvert on Panther Creek, and then cross-uplands to access the Prairie Basin Trail

#6035 (this route is a jeep trail that is open seasonally). Livestock follow this seasonal jeep trail to its intersection with the Moyer Basin trail #6036 (also a seasonal jeep trail) to the private land. There are no streams along the jeep trails as these routes are all in uplands.

When livestock leave this private property, they are either trucked or trailed to private land in Morgan Creek. If trailed, livestock will follow trails #6036 and #6035 to Opal Creek, where they then follow the Panther Creek Road #60055 over Morgan Creek Summit on Road #40055 to private property. Livestock are then trucked from private land off NFS lands.

1.3.1.2. Unit Livestock Occupancy

Lower Silver Creek Unit. In Year 1, livestock may enter the Lower Silver Unit as early as June 1, unless an extension is granted – livestock could then enter the Unit as early as May 16. Livestock remain in this Unit for approximately 25–30 days before they are gathered and moved to the West Fork Unit. The Camas Creek Exclosure, drift fences, and a natural barrier (i.e., topography in the form of steep slopes and short cliff sections) prevent livestock from accessing Camas Creek in this Unit. A portion of this trailing takes place through the Camas Exclosure as discussed below. Livestock cross Camas Creek on the road crossing when they are trailed through the exclosure.

In Year 2, livestock will enter the Lower Silver Unit no earlier than June 14, unless an extension is granted – livestock could then enter as early as June 1. Livestock remain in this Unit for approximately 20–25 days before they are gathered and moved to the West Fork Unit. A portion of this trailing takes place through the Camas Exclosure as discussed below. Livestock cross Camas Creek on the road crossing when they are trailed through the exclosure.

When livestock are moved from the Lower Silver Unit to the West Fork Unit, they trail along FSR 60259 (Figure 1) and pass through the Camas Creek Exclosure (Figure 2). Camas Creek is crossed on the road crossing. There is also a fenced crossing on the West Fork Camas Creek which allows livestock to access all portions of the Unit.

West Fork Unit. In Years 1 and 2, livestock may enter the West Fork Unit as early as June 15. Livestock could remain in this Unit until July 27. Livestock access to this Unit as discussed above.

When livestock are trailed from this unit to the Castle Creek Unit, they may follow one of two routes as described in Section 1.3.1.1. Each route involves crossing Camas Creek between one and three times. When livestock are moved out of the Unit, they are gathered in bunches of 50–75 pair and are trailed through the Camas Unit to the Castle Creek Unit. All trailing is supervised and will not occur before July 7. This move will occur up to a 5-day period, with each group of cattle being trailed directly to the Castle Creek Unit. Back riding will occur after all livestock are moved to ensure that no livestock are left in the Camas Creek Unit.

Camas Creek Unit – Trailing Only. This Unit is used for livestock trailing only. As described below, trailing could occur in both Year 1 and 2 over a 5-day period between July 7 and July 27, with some limited potential for drift through August 5 when livestock are moved to the Castle Creek Unit. Livestock are trailed on the existing road and trail system, and cross Camas Creek on the crossings associated with these travel systems. Back riding will occur in this Unit after all livestock are moved to ensure that no livestock are left in the Camas Creek Unit.

Livestock enter the Camas Creek Unit directly from the West Fork Unit or by trailing through the Camas Creek Exclosure along FSR 60259. If livestock are trailed along this road, they cross Camas Creek on the designated road crossing within the exclosure and then cross again in the Camas Creek Unit on the designated road crossing just above the exclosure. Livestock are trailed in small bunches of 50–75 pair along FRS 60258 (Figure 1) to the mouth of Castle Creek, where they again cross Camas Creek on a designated road crossing. Livestock then trail up FSR 60204 to the Castle Creek Unit. Cattle may also be trailed farther up Camas Creek along FS trail 4140 to the mouth of Furnace Creek. This trail crosses Camas Creek approximately 0.4 miles upstream from the mouth of Castle Creek. Once livestock reach Furnace Creek, they are pushed up onto the Castle Creek Unit. Drift fences on the road and trail systems in Castle and Furnace Creeks prevent livestock from drifting back into the Camas Creek Unit (see Figure 1 for fence locations).

Castle Creek Unit. Livestock may enter this Unit after July 7 in both Year 1 and 2. Livestock are trailed from the West Fork Unit, through the Camas Creek Unit, to either the Castle Creek or Furnace Creek drainage in groups of 50–75 pair as described. Livestock remain scattered throughout the Unit until August 15.

After August 15, livestock in the Castle Creek drainage are pushed into the upper reach of the drainage above the private property. Livestock are held on the slopes and meadows under Black Mountain, in the headwaters of Arrastra Creek drainage and in Furnace Creek until approximately September 15 when they are moved to the Upper Silver Unit. Daily riding will occur during this time to ensure that livestock remain in the upper reaches of the drainage and off the lower reaches of Castle Creek.

All livestock will be gathered and trailed into the Upper Silver Creek Unit through a low saddle between Arrastra Creek and Castle Creek by September 15. This Unit move occurs over the course of several days as cattle are gathered and moved into the Upper Silver Creek Unit; all livestock are removed from the Unit by September 15.

Upper Silver Creek Unit. Livestock enter the upper Silver Unit on or before September 15 and remain in this Unit until they are removed from the Allotment. There is a short period of less than one week, typically in early to mid-September, when livestock are trailed to the Meyers Cove Corral to wean and ship calves.

Livestock will be actively trailed from the Upper Silver Unit along FSR 60108 through the Lower Silver Unit then along FSR 60259 to the Meyers Cove Corral over the course of one day. Riders ensure that livestock remain on the road and cross on the bridge on Silver Creek near the corral, or cross Silver Creek at a location that has been approved by a fisheries biologist, when trailing to and from the Upper Silver Unit. Smaller bunches of cattle not gathered in the main gather will be trailed along this same route for an additional three days. Cows will overnight in the corral one to two nights after the calves have been trucked away and will then be actively trailed back up FSR 60259 and 60108 to the Upper Silver Unit.

Unit Moves. Stream crossings are necessary for moving livestock between units and they depend on the rotation and location of the livestock within the unit. Stream crossings are typically made over the course of one or two days, with the bulk of the herd typically crossing streams with riders (supervised trailing). Following or preceding this, several smaller groups may cross depending on the location of the cows, number of riders, weather, terrain, and any number of other factors. Back riding to pick up animals that were not gathered during the move date would also occur, with subsequent crossings of these smaller groups. There may be up to 10 percent livestock missed in this formal move; it is up to the permittee to gather the last livestock and move them so as to meet annual use indicators or required move dates.

- During moves before July 15, streams that may be crossed include: Camas Creek within the Meyer's Cove Exclosure. This crossing is located on a motorized route.
- During moves after July 27, streams that may be crossed during unit moves include: Castle Creek and Furnace Creek.
- During moves after August 15, streams that may be crossed include: Birdseye Creek and Silver Creek.

Weaning/Shipping. As described above, calves are typically weaned between September 1 and September 20 each year in the Meyers Cove Corral in the Lower Silver Unit. Livestock will be actively trailed from the Upper Silver Unit along FSR 60108 through the Lower Silver Unit then along FSR 60259 to the corral over the course of one day (Figure 1). Smaller bunches of cattle not gathered in the main gather will be trailed along this same route for an additional three days. Cows will then be actively trailed back up FSR 60259 and 60108 to the Upper Silver Unit. Riders ensure that livestock remain on the road while trailing to and from the corral. Silver Creek will be crossed on the bridge near the corral, or at a location approximately a quarter mile upstream where topography provides easy crossing. Prior to its use, this location will be cleared by a fisheries biologist to ensure that no redds are present.

1.3.2. Total Removal from NFS Lands

Livestock will be removed from the Allotment by October 15, unless there is a District Ranger approved extension following the language in Section 1.3 above.

1.3.3. Improvements

New Improvements: No new improvements are proposed at this time.

Existing improvements: Existing improvements, as displayed in Figure 1, will be maintained in accordance with the term grazing permit. For example, fences are maintained to serve their intended purpose, and water troughs are maintained to keep the trough functional and water from overflowing the side.

1.3.4. Changes from Existing Management

This proposed action includes the following changes from the management described in the July 2, 2014, BA (previous consultation):

- Cattle guards have been installed in the Meyer's Cove exclosure consistent with conservation measures described in the BA. A cattle guard was not installed in the drift fence on FSR 60204 at the Castle Creek Unit boundary as a suitable location for this improvement was not found, as the road width is too narrow.

- The Meyer's Cove corral within the Lower Silver Unit is authorized for use during weaning and trucking livestock off the Allotment, as described in Section 1.3.1.2. This change has been made because extensive work has been completed on both the corral and the Camas Creek Exclosure; this maintenance resulted in excellent control of cattle while in the corral and was effective at preventing livestock from accessing the exclosure.

- Livestock may be in the upper reaches of the Castle Creek Unit until September 15, as described in Section 1.3.1.2. This change was based on the permittee's request that he be authorized to use the Unit longer as it is the largest Unit and livestock can be better distributed there than in other Units. By allowing livestock in this Unit longer, it reduces the number of days livestock are in Upper Silver Creek, a smaller Unit, which contains bull trout (*Salvelinus confluentus*) habitat. Although there are bull trout in the Castle Creek Unit, distributing livestock over a larger area reduces the potential for impacts to bull trout.

- Supervised trailing within the Camas Creek Unit will occur no later than July 27 instead of August 5 to address data that shows Chinook salmon spawning in the Camas Creek starting as early as July 27.

- A FS employee will no longer evaluate the Camas Creek Exclosure twice per week while livestock are in the Lower Silver and West Fork Units. Although the SCNF will no longer check the exclosure, the permittee is still required under the terms and conditions of his permit to maintain improvements to functioning condition; this includes the exclosure. There was also extensive maintenance completed on the exclosure in 2017, with many sections of the buck and pole fence being reconstructed. After this effort, there were only two instances of a single calf within the exclosure, and both were associated with livestock moves into and out of the West Fork Unit.

- A rider is not required on the Allotment seven days per week except when livestock are in the Castle Creek Unit. As indicated in Section 1.3.1, riders will still be required on the Allotment 3–4 days per week when in the other Units. Exclosures, drift fences, and topography limit livestock access to Camas Creek and West Fork Camas Creek. In reviewing inspection notes, rider logs, and end of year reports from previous grazing seasons, livestock were not noted in the Upper Silver or West Fork at times other than authorized which indicates that fences and natural barriers are effective at controlling livestock. Livestock drift that was noted in the Camas Creek and Lower Silver Units occurred after livestock moves into and out of the Castle Creek Unit. Since riders are required seven days per week while livestock are in the Castle Creek Unit, any drift at this time will be promptly corrected.

- Daily radio check-ins and check-in logs are no longer required. Attempts to follow this conservation measure under the previous BA failed due to poor radio coverage, riders not returning to camp until near or after dark (which is 10:00pm in the summer), and lack of repeater reach. The daily check-in logs will not be needed since there will be no daily check-ins. The SCNF will continue to administer the Allotment on a regular basis to ensure that permit terms and conditions are being implemented. Periodic contact with the permittee or his rider will be encouraged and is suggested to occur at least once a week (telephone, face-to-face, text, etc.)

- A weekly check by FS personnel of the area above Hidden Valley Ranch is no longer required, and installation of an electric fence to prevent drift is no longer required. There has been no instance of livestock drift into this area since the 2014 BA was completed. Inspections by FS personnel found no indication (trails, tracks, etc.) that cattle drift into the White Goat Creek drainage from the Castle Creek Unit.

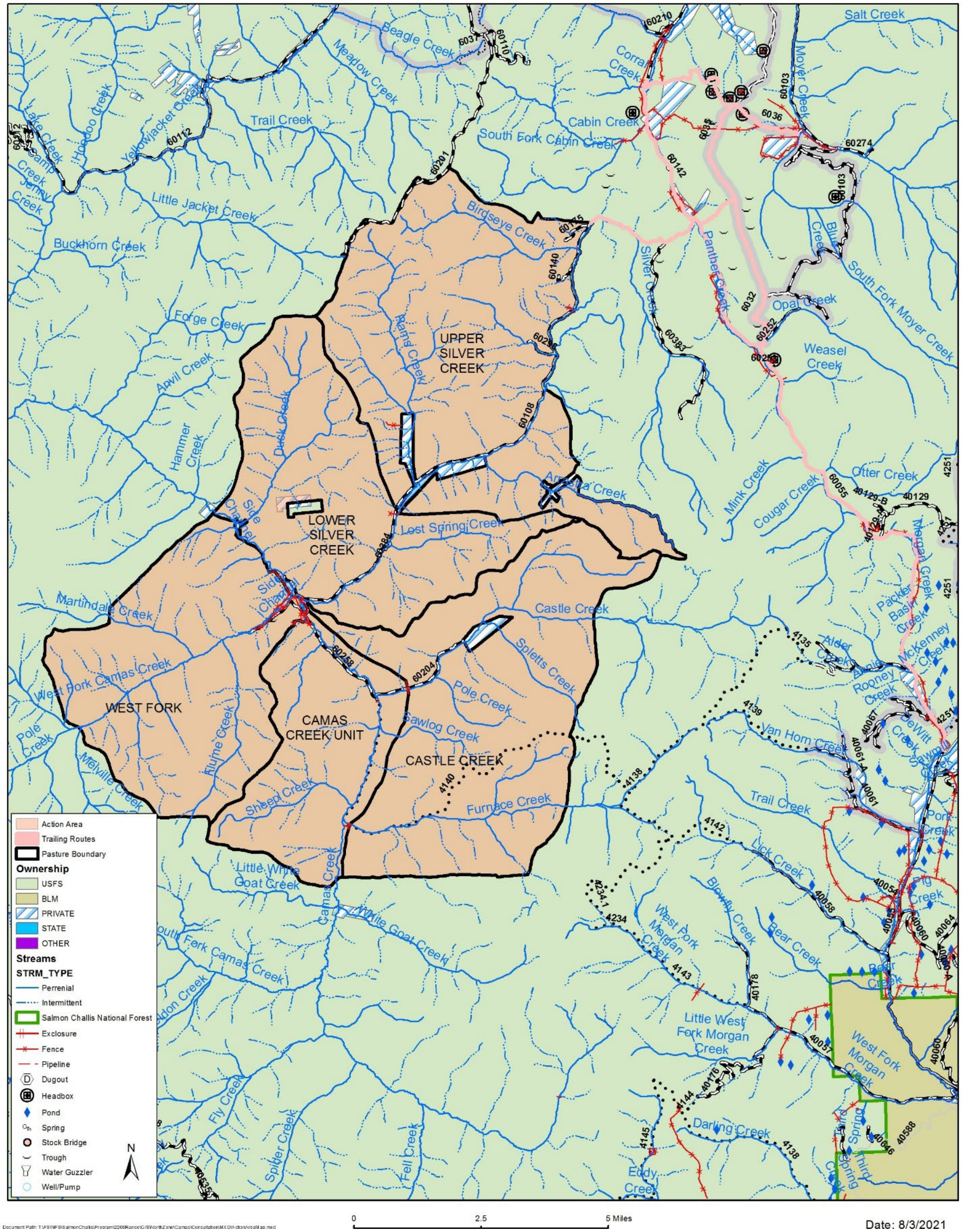

Figure 1. Camas Creek Allotment

Figure 2. Camas Creek Exclosure and Meyers Cove Corral

1.3.5. Conservation Measures

The following measures will be described and implemented as part of the term grazing permit(s) on Camas Creek Allotment, to avoid and reduce potential impacts to ESA-listed fish and their habitat within the Allotment.

- The SCNF will follow the Communication Plan – Implementing Livestock Grazing Consultation on the Salmon-Challis National Forest (BA Appendix F). Over the duration of this proposed action, the Communication Plan could be updated to better address livestock grazing management both within the FS and between the FS and NMFS/U.S. Fish and Wildlife Service (USFWS). The desired outcome of this Communication Plan is to conduct livestock grazing within the scope of the BA and analyzed in this opinion while being consistent and timely in communication when something is observed to the contrary.

- Per the Grazing System (Section 1.3.1) the on-date may vary so livestock are placed on the Allotment at range readiness.

- As described in Section 1.3.1, livestock do not graze the Camas Creek Unit, but are authorized to trail through the Unit to access the Castle Creek Unit. This trailing occurs for up to 5-days between July 7 and July 27 with potential for drift through August 5 to avoid most steelhead spawning and limit potential impacts to spawning Chinook salmon in the Camas Creek Unit. Riders will take all practicable measures to keep livestock on established ford crossings of Camas Creek during trailing operations.

- Livestock moves between Units and off the Allotment are made to meet specified dates and/or annual use indicators (Section 1.3.1.1).

- Permittees will continue to salt at least a quarter mile away from all streams.

- Daily riding will occur while livestock are in the Castle Creek Unit to ensure that livestock do not drift into the Camas Creek Unit, that gates at Castle and Furnace Creeks remain closed, and to manage livestock distribution after August 15.

- Permittees will continue to distribute livestock away from perennial streams and associated riparian areas by riding at least three days per week while livestock are in the Lower Silver Creek, West Fork, and Upper Silver Creek Units.

- Permittees will maintain improvements in accordance with the term grazing permit. The FS will ensure that the portion of the Camas Creek Exclosure in the Lower Silver Creek Unit is in functioning condition prior to the authorized turn-on date. The permittee will be responsible for maintenance of the rest of the exclosure and of the portion in the Lower Silver Creek Unit after livestock are placed on the Allotment.

- All gates on the Camas Creek Exclosure will remain closed while livestock are present on the Allotment.

- If the stream crossing on Silver Creek is used for trailing to the Meyers Cove Corral for weaning instead of the bridge crossing, a fishery biologist is required to ensure no bull trout redds are present at the crossing.

- The Allotment will continue to be monitored using implementation and effectiveness monitoring described in Section 1.3.6.4.

- Surveys for Chinook salmon redds will be completed in mainstem Camas Creek within the Camas Creek Unit, approximately 6.5 miles, at least once from July 27 to August 5 each year if not all livestock are completely through the Unit on July 27. Surveys will not be required in Camas Creek if livestock are not observed in the Camas Creek Unit after July 27. All Chinook salmon redd surveys will be completed by trained surveyors, which could include trained employees from FS, Shoshone-Bannock Tribes, NMFS, and Idaho Department of Fish and Game (IDFG) personnel.

- Surveys for Chinook salmon redds will be completed in Castle Creek at least once a year before August 15. After August 15, livestock are moved to the area above the private, out of potential Chinook spawning habitat. Spawning has not been documented in Castle

Creek to date, but habitat in the lower 1.28 miles does potentially support Chinook salmon spawning. This includes Castle Creek in both the Camas Creek and Castle Creek Units.

- The SCNF will fence out completed Chinook salmon redds that are vulnerable to livestock trampling if livestock are seen within the Camas Creek Unit between July 27 and August 5. All Chinook salmon redds will be flagged with the survey date and surveyor's name. The flagging will also identify the completion status of the redd. All Chinook salmon redds will be photographed along with recording global positioning system (GPS) coordinates. This information will be given to a NMFS Level 1 Team member by the SCNF as soon as possible.

1.3.6. Resource Objectives and Standards

1.3.6.1. Resource Objectives and Effectiveness Monitoring

The Allotment is being managed to support the following resource objectives. The first three resource objectives are the most affected by livestock grazing. Resource objectives are the Forest's description of the desired land, plant, and water resources condition within riparian areas in the Allotment. Some resource objectives are Riparian Management Objectives (RMOs) from PACFISH and its corresponding biological opinions (NMFS 1998). PACFISH is an interim strategy for managing anadromous fish-producing watersheds that was amended into the Salmon and Challis Forest Plans in 1995.

Effectiveness monitoring for resource objectives will be monitored every five years at Designated Monitoring Areas (DMAs) using the Multiple Indicator Monitoring (MIM) technical reference (Burton et al. 2011) or other best available science as it becomes available. DMAs are areas representative of grazing use specific to the riparian area being accessed and reflect what is happening in the overall riparian area as a result of on-the-ground management actions. They should reflect typical livestock use where they enter and use vegetation in riparian areas immediately adjacent to the stream (Burton et al. 2011).

Resource Objectives

- Greenline Successional Status: A greenline successional status [a.k.a., GES] value of at least 61 (late seral) (Burton et al. 2011; Gamett et al. 2008; Winward 2000).

- Woody Species Regeneration: Sufficient woody recruitment to develop and maintain healthy woody plant populations (Burton et al. 2011; Gamett et al. 2008; Winward 2000).

- Streambank Stability: The Camas Creek Allotment is partially within and partially outside of a priority watershed (Figure 4.4 in the BA). Within priority watersheds a bank stability is at least 90 percent or the current value, whichever is greatest (NMFS 1998).

- Width to Depth Ratio (W:D) (USDA 1995). Less than10, mean wetted width divided by mean depth or by channel type as follows:

    - A Channel: 21

    - B Channel: 27

    - C Channel: 28

- Water Temperature RMO:

    - Chinook Salmon and Steelhead: No measurable increase in maximum water temperature (expressed as the 7-day moving average of daily maximum temperatures measured as the average of the maximum daily temperature of the warmest consecutive 7-day period) less than 64°F (17.8°C) in migration and rearing areas and less than 60°F (15.6°C) in spawning areas except in steelhead priority watersheds where the objective is less than 45°F (7.2°C) in steelhead spawning areas during the incubation period (NMFS, 1998).

- Sediment RMO: Less than 20 percent surface fine sediment, which is substrate less than 0.25-inch (6.4 millimeter) in diameter in spawning habitat.

1.3.6.2. Management Standards (PACFISH)

The following PACFISH Resource Standards will be applied to management of the Allotment:

- GM-1 – Modify grazing practices (e.g., accessibility of riparian area to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of RMOs or are likely to adversely affect listed anadromous fish. Suspend grazing if adjusting practices is not effective in meeting RMOs and avoiding adverse effects on listed anadromous fish (PACFISH).

- GM-2 – Locate new livestock handling and/or management facilities outside of Riparian Habitat Conservation Areas (RHCAs). For existing livestock handling facilities inside the RHCAs, assure that facilities do not prevent attainment of RMOs or adversely affect listed anadromous fish. Relocate or close facilities where these objectives cannot be met.

- GM-3 – Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that will not retard or prevent attainment of RMOs or adversely affect listed anadromous fish.

1.3.6.3. Annual Grazing Use Indicators

Annual Use Indicators. Annual use indicators are used to ensure that grazing does not prevent the attainment of the riparian resource objectives directly affected by livestock grazing. Riparian annual use indicators used on the SCNF generally include greenline stubble height, bank alteration, and woody browse. In general, greenline stubble height is used to regulate grazing impacts on GES, bank alteration is used to regulate grazing impacts on bank stability, and woody browse is used to regulate impacts on woody recruitment. The specific indicators selected for a specific unit should be those that correspond with the riparian resources that are most sensitive to the impacts of livestock grazing. For example, if bank stability was the riparian feature most likely to be impacted by livestock grazing in a unit, then bank alteration would be selected as the annual use indicator for that unit.

Based on the guidelines in Section 1.3.6.5, the available data including results from implementation and effectiveness monitoring, and the professional experience of FS personnel, the annual use indicators - for habitat either occupied by ESA-listed fish, or their designated critical habitat - have been established on this Allotment (Table 2). The annual use indicators will be used until the next effectiveness monitoring for greenline ecological status, woody regeneration, and bank stability indicate adjustment is needed. Any adjustments to meet these three resource objectives directly affected by livestock grazing will be made using Adaptive Management (Section 1.3.6.7). The annual use indicators in Table 2 drive when unit moves, or the off-date occurs. Permittees are responsible for moving livestock to meet these annual use indicators.

Triggers. Permittees use triggers to determine when livestock need to be moved from a unit to ensure that annual use indicators are not exceeded. A trigger's numerical value varies from unit to unit, and from year to year, for any unit based on the season's growing conditions, amount of precipitation received, how long it may take to move livestock from one unit to the next, etc. As such, triggers are informally customized to the specific circumstances of each unit for the year, but may typically range from five to seven inches, for example, for the stubble height indicator (see Table 2). While the FS works with the permittees to help them know how to monitor stubble height, bank alteration, and woody browse, trigger monitoring by permittees is informal (not documented) and it is not reported. The stated direction in the term grazing permit(s) is for the permittees to ensure annual use indicators are met.

Table 2. Designated Monitoring Areas and Annual Use Indicators.

Location	Unit Stream	Monitoring Attribute	Key Species	Annual Use Indicator	Estimated Use Trigger
M227	Castle Creek Unit Castle Creek	Browse use	Willow/alder	50%/30%	45%/25%
		Greenline stubble	Hydric spp.	6 in.	7 in.
		Bank Alteration	n/a	≤ 20%	≤ 15%
M228	Castle Creek Unit Furnace Creek	Browse use	Willow/alder	30%/20%	25%/15%
		Greenline stubble	Hydric spp.	4 in.	5 in.
		Bank Alteration	n/a	≤ 20%	≤ 15%
M229A	Lower Silver Creek Unit Silver Creek	Browse use	Willow/alder	50%/30%	45%/25%
		Greenline stubble	Hydric spp.	4 in.	5 in.
		Bank Alteration	n/a	≤ 20%	≤ 15%
M230	Upper Silver Creek Unit Silver Creek	Browse use	Willow	50%/30%	45%/25%
		Greenline stubble	Hydric spp.	6 in.	7 in.
		Bank Alteration	n/a	≤ 20%	≤ 15%
M242	West Fork Unit West Fork Camas Creek	Browse use	Willow/alder	50%/30%	45%/25%
		Greenline stubble	Hydric spp.	4 in.	5 in.
		Bank Alteration	n/a	≤ 15%	≤ 10%

Location	Unit Stream	Monitoring Attribute	Key Species	Annual Use Indicator	Estimated Use Trigger
M324	Upper Silver Creek Unit Birdseye Creek	Browse use	Willow/alder	50%/30%	45%/25%
		Greenline stubble	Hydric spp.	4 in.	5 in.
		Bank Alteration	n/a	≤ 20%	≤ 15%

Monitoring of Table 2 Annual Use Indicators will be conducted using the MIM protocol (Burton et al 2011) or other best available science. Monitoring locations identified in Table 2 are key areas, also referred to as DMAs. Each is a representative DMA, and as such is to be located in an area that is representative of streamside livestock use, reflecting typical use of riparian vegetation and streambanks (Burton et al 2011). DMAs identified in Table 2 are representative of units that have ESA-listed fish and or designated critical habitat.

Key species are preferred by livestock and are an important component of a plant community, serving as an indicator of change (USDI Bureau of Land Management 1999). Season-end annual use indicators will be monitored by FS personnel or a person authorized by the FS. For further discussion of monitoring annual use, see Monitoring Section 1.3.6.4.

1.3.6.4. Monitoring and Reporting

Implementation (Annual) Monitoring. The monitoring protocol uses the MIM method (Burton et al. 2011) or other best available published science. Implementation monitoring will be conducted at DMAs (Table 2). Each DMA is to be located in an area that is representative of streamside livestock use, reflecting typical use of riparian vegetation and streambanks (Burton et al. 2011).

The purpose of monitoring annual use indicators is to identify the relationship between this allowed use (Table 2) and attainment of the three riparian resource objectives directly affected by livestock grazing. Per the MIM method, timing of annual use monitoring is based on its purpose. Alteration monitoring is typically conducted within two weeks of livestock having been moved from a Unit. Monitoring residual stubble height, as a protective cover for next spring's flows, is conducted by the end of the grazing season. Annual use indicators will be monitored by FS personnel or a person trained and authorized by the FS.

Effectiveness (Long-Term) Monitoring. The monitoring protocol for the channel geometry is revised from a wetted width: depth measurement (range monitoring prior to 2010) and a bankfull width: depth metric (watershed monitoring 1993–2016) to the greenline-to-greenline width (GGW) measurement as described in the MIM protocol.

Wetted width is highly dependent on when it is monitored, it varies with flow and is the width of the water on that date. Bankfull width: depth on the other hand, is accepted as an important channel metric, helping managers understand the distribution of energy within a channel, and the ability of various flows to move sediment (Rosgen 1994).

Bankfull width: depth informs channel type, and can vary by plus or minus two units without indicating a change in stream morphology or channel type (Rosgen 1994). Prior BAs presented bankfull width: depth data collected at the Forest sediment monitoring sites to determine Rosgen channel type (1992-2005). Measurement of channel dimensions and determination of Rosgen channel type began again at all sites in 2015 in order to verify previous channel types, correct previous channel type errors, and determine channel type for sites that do not have this information. Future collection of channel type data will not be needed at sites where recent existing channel type data exist and are known to be accurate. There are two further considerations of use of these bankfull width depth measures. One is that the Salmon-Challis sediment monitoring sites are not necessarily representative of livestock use, they were chosen to be low in the watersheds the Forest manages, and each definitive exact location is where spawning habitat is present. Second is concern for the subjective nature of identifying bankfull elevations – useful for stream classification but should be monumented for detecting change on a stream reach.

Early versions (2007 through 2009) of the MIM protocol contained a max water depth and max water width metric at DMAs. Results of this metric were sometimes presented in prior BAs. However, in 2010, the MIM method dropped this, what is essentially a wetted width to depth measurement. The remaining metric is GGW; this is the non-vegetated distance between the greenline on each side of the stream. "It provides an indication of the width of the channel, reflecting disturbance of the streambanks and vegetation. As stream channel margins are disturbed by trampling or excessive vegetation consumption, streams may erode the streambanks, causing a lateral erosion of the streambank and streamside vegetation. This results in a shifting out or widening of the distance between greenlines within the non-vegetated channel" (Burton et al. 2011). "The loss of vegetative integrity and breakdown of streambanks by livestock trampling may lead to bank erosion and subsequent channel widening (Rosgen 1996). Because vegetation is frequently related to bank stability, the non-vegetated width between green lines is an excellent way to monitor this effect on the channel. As channels widen, water depth decreases with potential negative effects on aquatic habitat and water temperature." (Burton et al, 2011).

Because GGW is: (1) sensitive to livestock use; (2) indicates trend when used with greenline composition and bank stability where a stream is over-widened; and (3) possess good repeatability, the SCNF is now tracking GGW width as a metric that indicates if there are underlying changes in channel dimensions.

1.3.6.5. Fish Monitoring.

Fish population monitoring, which will include determining ESA-listed fish presence and density, will be conducted at long-term monitoring sites within the Allotment at least once every five years. As required, annual Chinook salmon and bull trout redd survey monitoring will continue on the Allotment.

1.3.6.6. Reporting.

Results from annual opinion Monitoring Reports will be electronically emailed to the respective Regulatory Agency by March 1 each year. Results from the annual Monitoring Reports will be available at:
https://www.fs.usda.gov/detail/scnf/landmanagement/resourcemanagement/?cid=STELPRDB5308989.

1.3.6.7. Adaptive Management

The adaptive management strategy, described below and depicted in Appendix A, Diagrams one (Long term) and two (Annual), is intended for allotments requiring consultation. The adaptive management strategy will be used to ensure: (1) sites at desired condition remain in desired condition; (2) sites not in desired condition have an upward trend or an acceptable static trend to be agreed upon with the Services (NMFS and the USFWS) and the FS; and (3) direction from consultation with the Services is met. The overall strategy consists of a long-term adaptive management strategy and an annual adaptive management strategy. The long-term strategy describes how adaptive management will be used to ensure the three resource objectives that livestock directly affect are achieved and to maintain consistency with Forest Plan level direction. The annual adaptive management strategy describes how adjustments will be made within the grazing season to ensure annual use indicators and other direction from consultation is met. Both strategies describe when and how regulatory agencies will be contacted in the event direction from consultation is not going to be met (see also Communication Plan, BA Appendix).

Ideally, the value associated with the annual use indicator is customized to the specific circumstances in each Unit, and is based on data and experience. However, customizing this value generally requires a significant amount of data and or experience with a particular Unit. When sufficient data and/or experience are not available to establish the annual use indicator values, the SCNF has provided default recommendations for establishing the values. These recommendations will be used until sufficient data and or experience are available to customize the annual indicator values. The recommendations that apply to this Allotment are displayed in Table 3.

Table 3. End of Season Annual Use Indicator Value Recommendations.

Grazing Management Resource Objective	Current Status of Resource Objective	Annual Use Indicator	End of Season Annual
Greenline Successional Status	> 61%	Stubble Height	4”
	< 61%	Stubble Height	6”
Bank Stability (Priority Watershed)	90%	Bank Alteration	20%
	70-89%	Bank Alteration	10-20%
	< 70%	Bank Alteration	10%
Bank Stability (Non-Priority Watershed)	80%	Bank Alteration	20%
	60-79%	Bank Alteration	10-20%
	< 60%	Bank Alteration	10%
Woody Regeneration Single-Stemmed	Sufficient Woody Recruitment	Woody Browse	50%
	Not Sufficient Woody Recruitment	Woody Browse	30%
Woody Regeneration Aspen Multi-Stemmed	Sufficient Woody Recruitment	Woody Browse	50%
	Not Sufficient Woody Recruitment	Woody Browse	30%

Livestock grazing in the uplands and riparian areas will be limited to 50 percent use on key herbaceous species within representative use areas of the allotment during the grazing season.

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would not.

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 provide 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 reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

The SCNF determined the proposed action is likely to adversely affect SRB steelhead. They also determined the actions are not likely to adversely affect (NLAA) SR spring/summer Chinook salmon or critical habitat for SRB steelhead and SR spring/summer Chinook salmon. Our concurrence is documented in the NLAA Determinations section (Section 2.12). The SCNF also made a no effect determination for SR sockeye salmon. Table 4 provides the ESA listing status for the species and habitats.

Table 4. Federal Register notices for final rules that list threatened and endangered species, designated critical habitat, or apply protective regulations to listed species considered in this consultation.

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon (*Oncorhynchus tshawytscha*)			
Snake River spring/summer run	T 6/28/05; 70 FR 37160	12/28/93; 58 FR 68543 10/25/99; 64 FR 57399	6/28/05; 70 FR 37160
Steelhead (*O. mykiss*)			
Snake River Basin	T 1/05/06; 71 FR 834	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status 'T' means listed as threatened under the ESA.

2.1. Analytical Approach

This biological opinion includes a jeopardy analysis. The jeopardy analysis relies upon the regulatory definition of "jeopardize the continued existence of" a listed species, which is "to engage in an action that reasonably 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.

The ESA Section 7 implementing regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the final rule revising the definition and adding this term (84 FR 44976, 44977; August 27, 2019), that revision 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:

- Evaluate the rangewide status of the species expected to be adversely affected by the proposed action.
- Evaluate the environmental baseline of the species.
- Evaluate the effects of the proposed action on species 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, analyze whether the proposed action is likely to 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.
- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2. Rangewide Status of the Species

This opinion examines the status of SRB steelhead distinct population segment (DPS) that is likely to be adversely affected by the proposed action. 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" for the jeopardy analysis.

This DPS 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 (ICTRT 2010). 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. NMFS' recovery plan for SRB steelhead (NMFS 2017) describes these four parameters in detail and the parameter values needed for persistence of individual populations and for recovery of the DPS.

Table 5 summarizes the status and available information on SRB steelhead, based on the detailed information on the status of individual populations, and the species as a whole provided by the ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon and Snake River Basin Steelhead (NMFS 2017), Status Review Update for Pacific Salmon and Steelhead Listed under the Endangered Species Act: Pacific Northwest (NWFSC 2015), and 2016 5-year Review: Summary and Evaluation of Snake River Sockeye Salmon, Snake River Spring-summer Chinook, Snake River Fall-run Chinook, Snake River Basin Steelhead (NMFS 2016). These three documents are incorporated by reference here. Additional information (e.g., abundance estimates) have become available since the latest status review (NMFS 2016) and its technical support document (NWFSC 2015). This latest information (Ford 2022) represents the best scientific and commercial data available and is summarized in the following sections. SRB steelhead remain threatened with extinction due to many individual populations not meeting recovery plan abundance and/or productivity targets.

Table 5. Most recent listing classification and date, status summary (including recovery plan reference and most recent status review), and limiting factors for species considered in this opinion.

Species	Listing Status	Status Summary	Limiting Factors
Snake River Basin Steelhead	Threatened 1/5/06	This DPS includes 24 populations organized into five major population groups (MPGs). In 2015, five populations were tentatively rated at high risk of extinction, 17 populations were rated at moderate risk of extinction, one population was viable, and one population was highly viable (NWFSC 2015). Four out of the five MPGs were not meeting the population viability goals laid out in the recovery plan (NMFS 2017). Since 2015, adult abundance has decreased for all populations except one (range -15 percent to -78 percent, Ford 2022). The Wallowa River population needs additional data on spawning abundance. All five MPGs are not meeting recovery plan objectives. The Clearwater and Grande Ronde River MPGs are rated as "maintained." The relative proportion of hatchery fish spawning in natural spawning areas near major hatchery release sites remains uncertain (Ford 2022; NWFSC 2015). Overall, the information analyzed for this viability review indicates that the Snake River Basin steelhead DPS remains at "moderate" risk of extinction, with viability largely unchanged from the prior review (Ford 2022).	• 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 fresh water habitat. • Harvest-related effects, particularly B-run steelhead. • Predation in the migration corridor.

The action has the potential to affect steelhead belonging to the Lower Middle Fork Salmon River, Panther Creek, and East Fork Salmon River populations, which are part of the Salmon River major population group (MPG). Current viability status, applying Interior Columbia Technical Recovery Team (ICTRT) (2007) criteria, for each SRB steelhead population affected by the actions is displayed in Table 6 along with the populations' life history type, population size class, and its role in NMFS' example recovery scenarios (NMFS 2017). It is important to note that all populations must meet criteria for a maintained status – less than 25 percent chance of extinction in 100 years – to maintain options for a viable MPG and the species recovery (ICTRT 2007).

For steelhead, all affected populations of SRB steelhead belong to the Upper Salmon River MPG, which includes a total of 12 populations. Six of those populations must be viable, with the appropriate representation of population size, life history, and spatial distribution to meet MPG viability criteria. The recovery plan's example recovery scenario for this MPG identifies two Middle Fork populations, the South Fork Salmon River, Chamberlain Creek, Panther Creek, and the North Fork Salmon River populations. This scenario meets the ICTRT (2007) criteria. The Lower Middle Fork Salmon River and Panther Creek populations affected by this action are included in the recovery scenario. All populations must improve to a maintained status for the MPG to be viable. Although the current status review is not yet complete, the available information suggests the affected populations may be meeting criteria for maintained status.

At the MPG scale, 5-year geometric mean SRB steelhead natural adult abundance declined an average of 54 percent across the MPG (range 31 to 71 percent) when comparing return years 2010–2014 to 2015–2019. There is a great deal of uncertainty with individual population abundances in this MPG given estimates are generated from aggregate Lower Granite Dam returns and then parsed into similar genetic stock groupings. Data are still not available for individual populations and the values remain unconfirmed estimates and are applied with caution. The data are however, the best current information and represent an improvement from previous estimates, which were based solely on aggregate dam counts.

Table 6. Preliminary estimated Snake River Basin steelhead abundance [most recent 10-year geometric mean (range)] and viability ratings and recovery plan role for populations potentially affected by the proposed actions considered in this opinion.

Population	Abundance/Productivity Metrics [a]				Integrated Spatial Structure and Diversity Risk	Overall Risk Rating	Identified for viable status in ICTRT Recovery Scenario[b]
	ICTRT Minimum Threshold	Natural Spawning Abundance	ICTRT Productivity	Integrated A/P Risk			
Salmon River MPG Populations Affected by Proposed Actions							
East Fork Salmon River	1,000	3,502 (sd 2,562)	1.88 (0.17 16/20)	Moderate	Moderate	Maintained	No
Panther Creek.	500			Moderate	High	High	Yes
Lower Middle Fork Salmon River	1,000			Moderate	Moderate	Maintained	Yes

[a] Abundance and productivity values are generated from aggregate steelhead counts at Lower Granite Dam that are subsequently partitioned into four subgroups based on genetic stock identification. The Upper Salmon River stock group includes six populations. The displayed abundance and productivity values are for the entire subgroup, not just the four populations shown.
[b] Populations marked 'yes' must be viable which is defined as having a 5 percent or less risk of extinction over 100 years. All populations in the MPG must meet criteria for maintained status for the MPG to be viable. Maintained populations have a less than 25 percent chance of extinction in 100 years.

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

Climate change is affecting aquatic habitat and the rangewide status of SRB steelhead. The U.S. Global Change Research Program reports average warming of about 1.3°F from 1895 to 2011, and projects an increase in average annual temperature of 3.3°F to 9.7°F by 2070 to 2099 (CCSP 2014). Climate change has negative implications for ESA listed anadromous fishes and their habitats in the Pacific Northwest (CIG 2004; ISAB 2007; Scheuerell and Williams 2005; Zabel et al. 2006). According to the Independent Science Advisory Board (ISAB), these effects will cause the following:

- Warmer air temperatures will result in diminished snowpack and a shift to more winter/spring rain and runoff, rather than snow that is stored until the spring/summer melt season.

- With a smaller snowpack, watersheds will see their runoff diminished earlier in the season, resulting in lower flows in the June through September period, while more precipitation falling as rain rather than snow will cause higher flows in winter, and possibly higher peak flows.

- Water temperatures are expected to rise, especially during the summer months when lower flows co-occur with warmer air temperatures.

These changes will not be spatially homogeneous across the entire Pacific Northwest. Low-lying areas are likely to be more affected. Climate change may have long-term effects that include, but are not limited to, depletion of important cold-water habitat, variation in quality and quantity of tributary rearing habitat, alterations to migration patterns, accelerated embryo development, premature emergence of fry, and increased competition among species.

Climate change is predicted to cause a variety of impacts to Pacific salmon (including steelhead) and their ecosystems (Crozier et al. 2008a; Martins et al. 2012; Mote & Salathé 2009; Wainwright & Weitkamp 2013). The complex life cycles of anadromous fishes, including salmon, rely on productive freshwater, estuarine, and marine habitats for growth and survival, making them particularly vulnerable to environmental variation. Ultimately, the effects of climate change on salmon and steelhead across the Pacific Northwest will be determined by the specific nature, level, and rate of change and the synergy between interconnected terrestrial/freshwater, estuarine, nearshore, and ocean environments.

The primary effects of climate change on Pacific Northwest salmon and steelhead include:

- Direct effects of increased water temperatures on fish physiology.

- Temperature-induced changes to streamflow patterns.

- Alterations to freshwater, estuarine, and marine food webs.

- Changes in estuarine and ocean productivity.

While all habitats used by Pacific salmon will be affected, the impacts and certainty of the change vary by habitat type. Some effects (e.g., increasing temperature) affect salmon at all life stages in all habitats, while others are habitat-specific, such as streamflow variation in freshwater, sea-level rise in estuaries, and upwelling in the ocean. How climate change will affect each stock or population of salmon also varies widely depending on the level or extent of change, the rate of change, and the unique life-history characteristics of different natural populations (Crozier et al. 2008b). For example, a few weeks difference in migration timing can have large differences in the thermal regime experienced by migrating fish (Martins et al. 2011).

Temperature Effects. Like most fishes, salmon are poikilotherms (cold-blooded animals); therefore, increasing temperatures in all habitats can have pronounced effects on their physiology, growth, and development rates (Whitney et al. 2016). Increases in water temperatures beyond their thermal optima will likely be detrimental through a variety of processes, including increased metabolic rates (and therefore food demand), decreased disease resistance, increased physiological stress, and reduced reproductive success. All of these processes are likely to reduce survival (Beechie et al. 2013; Wainwright & Weitkamp 2013; Whitney et al. 2016).

By contrast, increased temperatures at ranges well below thermal optima (i.e., when the water is cold) can increase growth and development rates. Examples of this include accelerated emergence timing during egg incubation stages, or increased growth rates during fry stages (Crozier et al. 2008a; Martins et al. 2011). Temperature is also an important behavioral cue for migration (Sykes et al. 2009), and elevated temperatures may result in earlier-than-normal migration timing. While there are situations or stocks where this acceleration in processes or behaviors is beneficial, there are also others where it is detrimental (Martins et al. 2012; Whitney et al. 2016).

Freshwater Effects. Climate change is predicted to increase the intensity of storms, reduce winter snow pack at low and middle elevations, and increase snowpack at high elevations in northern areas. Middle and lower-elevation streams will have larger fall/winter flood events and lower late-summer flows, while higher elevations may have higher minimum flows. How these changes will affect freshwater ecosystems largely depends on their specific characteristics and location, which vary at fine spatial scales (Crozier et al. 2008b; Martins et al. 2012). For example, within a relatively small geographic area (the Salmon River basin in Idaho), survival of some Chinook salmon populations was shown to be determined largely by temperature, while in others it was determined by flow (Crozier and Zabel 2006). Certain salmon populations inhabiting regions that are already near or exceeding thermal maxima will be most affected by further increases in temperature and, perhaps, the rate of the increases. The effects of altered flow are less clear and likely to be basin-specific (Beechie et al. 2013; Crozier et al. 2008b). However, flow is already becoming more variable in many rivers, and this increased variability is believed to negatively affect anadromous fish survival more than other environmental parameters (Ward et al. 2015). It is likely this increasingly variable flow is detrimental to multiple salmon and steelhead populations, and also to other freshwater fish species in the Columbia River basin.

Stream ecosystems will likely change in response to climate change in ways that are difficult to predict (Lynch et al. 2016). Changes in stream temperature and flow regimes will likely lead to shifts in the distributions of native species and provide "invasion opportunities" for exotic species. This will result in novel species interactions, including predator-prey dynamics, where juvenile native species may be either predators or prey (Lynch et al. 2016; Rehage and Blanchard

2016). How juvenile native species will fare as part of "hybrid food webs," which are constructed from natives, native invaders, and exotic species, is difficult to predict (Naiman et al. 2012).

Estuarine Effects. In estuarine environments, the two big concerns associated with climate change are rates of sea level rise and water temperature warming (Limburg et al. 2016; Wainwright & Weitkamp 2013). Estuaries will be affected directly by sea-level rise: as sea level rises, terrestrial habitats will be flooded and tidal wetlands will be submerged (Kirwan et al. 2010; Limburg et al. 2016; Wainwright & Weitkamp 2013). The net effect on wetland habitats depends on whether rates of sea-level rise are sufficiently slow that the rates of marsh plant growth and sedimentation can compensate (Kirwan et al. 2010).

Due to subsidence, sea-level rise will affect some areas more than others, with the largest effects expected for the lowlands, like southern Vancouver Island and central Washington coastal areas (Lemmen et al. 2016; Verdonck 2006). The widespread presence of dikes in Pacific Northwest estuaries will restrict upward estuary expansion as sea levels rise, likely resulting in a near-term loss of wetland habitats (Wainwright & Weitkamp 2013). Sea-level rise will also result in greater intrusion of marine water into estuaries, resulting in an overall increase in salinity, which will also contribute to changes in estuarine floral and faunal communities (Kennedy 1990). While not all anadromous fish species are highly reliant on estuaries for rearing, extended estuarine use may be important in some populations (Jones et al. 2014), especially if stream habitats are degraded and become less productive. Preliminary data indicate that some Snake River Basin steelhead smolts actively feed and grow as they migrate between Bonneville Dam and the ocean (Beckman 2018), suggesting that estuarine habitat is important for this DPS.

Marine Effects. In marine waters, increasing temperatures are associated with observed and predicted poleward range expansions of fish and invertebrates in both the Atlantic and Pacific Oceans (Asch 2015; Cheung et al. 2015; Lucey and Nye 2010). Rapid poleward species shifts in distribution in response to anomalously warm ocean temperatures have been well documented in recent years, confirming this expectation at short time scales. Range extensions were documented in many species from southern California to Alaska during unusually warm water associated with "the blob" in 2014 and 2015 (Bond et al. 2015; Di Lorenzo and Mantua 2016) and past strong El Niño events (Fisher et al. 2015; Pearcy 2002). For example, recruitment of the introduced European green crab (*Carcinus maenas*) increased in Washington and Oregon waters during winters with warm surface waters, including 2014 (Yamada et al. 2015). Similarly, the Humboldt squid (*Dosidicus gigas*) dramatically expanded its range northward during warm years of 2004–09 (Litz et al. 2011). The frequency of extreme conditions, such as those associated with El Niño events or "blobs" is predicted to increase in the future (Di Lorenzo and Mantua 2016), further altering food webs and ecosystems.

Expected changes to marine ecosystems due to increased temperature, altered productivity, or acidification will have large ecological implications through mismatches of co-evolved species and unpredictable trophic effects (Cheung et al. 2015; Rehage and Blanchard 2016). These effects will certainly occur, but predicting the composition or outcomes of future trophic interactions is not possible with current models.

Wind-driven upwelling is responsible for the extremely high productivity in the California Current ecosystem (Bograd et al. 2009; Peterson et al. 2014). Minor changes to the timing, intensity, or duration of upwelling, or the depth of water-column stratification, can have dramatic effects on the productivity of the ecosystem (Black et al. 2015; Peterson et al. 2014). Current projections for changes to upwelling are mixed: some climate models show upwelling unchanged, but others predict that upwelling will be delayed in spring, and more intense during summer (Rykaczewski et al. 2015). Should the timing and intensity of upwelling change in the future, it may result in a mismatch between the onset of spring ecosystem productivity and the timing of salmon entering the ocean, and a shift toward food webs with a strong sub-tropical component (Bakun et al. 2015).

Columbia River anadromous fishes also use coastal areas of British Columbia and Alaska and midocean marine habitats in the Gulf of Alaska, although their fine-scale distribution and marine ecology during this period are poorly understood (Morris et al. 2007; Pearcy and McKinnell 2007). Increases in temperature in Alaskan marine waters have generally been associated with increases in productivity and salmon survival (Mantua et al. 1997; Martins et al. 2012), thought to result from temperatures that are normally below thermal optima (Gargett 1997). Warm ocean temperatures in the Gulf of Alaska are also associated with intensified downwelling and increased coastal stratification, which may result in increased food availability to juvenile salmon along the coast (Hollowed et al. 2009; Martins et al. 2012). Predicted increases in freshwater discharge in British Columbia and Alaska may influence coastal current patterns (Foreman et al. 2014), but the effects on coastal ecosystems are poorly understood.

In addition to becoming warmer, the world's oceans are becoming more acidic as increased atmospheric carbon dioxide is absorbed by water. The North Pacific is already acidic compared to other oceans, making it particularly susceptible to further increases in acidification (Lemmen et al. 2016). Laboratory and field studies of ocean acidification show that it has the greatest effects on invertebrates with calcium-carbonate shells, and has relatively little direct influence on finfish; see reviews by Haigh et al. (2015) and Mathis et al. (2015). Consequently, the largest impact of ocean acidification on salmon will likely be the influence on marine food webs, especially the effects on lower trophic levels (Haigh et al. 2015; Mathis et al. 2015). Marine invertebrates fill a critical gap between freshwater prey and larval and juvenile marine fishes, supporting juvenile salmon growth during the important early-ocean residence period (Daly et al. 2009; Daley et al. 2014).

Uncertainty in Climate Predictions. There is considerable uncertainty in the predicted effects of climate change on the globe as a whole, and on the Pacific Northwest in particular. Many of the effects of climate change (e.g., increased temperature, altered flow, coastal productivity, etc.) will have direct impacts on the food webs that species rely on in freshwater, estuarine, and marine habitats to grow and survive. Such ecological effects are extremely difficult to predict even in fairly simple systems, and minor differences in life-history characteristics among stocks of salmon may lead to large differences in their response (Crozier et al. 2008b; Martins et al. 2011; Martins et al. 2012). This means it is likely that there will be "winners and losers," meaning some salmon populations may enjoy different degrees or levels of benefit from climate change while others will suffer varying levels of harm. Climate change is expected to impact anadromous fishes during all stages of their complex life cycle. In addition to the direct effects of rising temperatures, indirect effects include alterations in flow patterns in freshwater and changes to food webs in freshwater, estuarine, and marine habitats. There is high certainty that predicted physical and chemical changes will occur; however, the ability to predict bio-ecological changes to fish or food webs in response to these physical/chemical changes is extremely limited, leading to considerable uncertainty. In additional to physical and biological effects, there is also the question of indirect effects of climate change and whether human "climate refugees" will move into the range of salmon and steelhead, increasing stresses on their respective habitats (Dalton et al. 2013; Poesch et al. 2016).

Summary. Climate change is expected to impact Pacific Northwest anadromous fishes during all stages of their complex life cycle. In addition to the direct effects of rising temperatures, indirect effects include alterations in stream-flow patterns in freshwater and changes to food webs in freshwater, estuarine, and marine habitats. There is high certainty that predicted physical and chemical changes will occur; however, the ability to predict bio-ecological changes to fish or food webs in response to these physical/chemical changes is extremely limited, leading to considerable uncertainty. As we continue to deal with a changing climate, management actions may help alleviate some of the potential adverse effects (e.g., hatcheries serving as a genetic reserve and source of abundance for natural populations, increased riparian vegetation to control water temperatures, etc.)

Climate change is expected to make recovery targets for Chinook salmon and steelhead populations more difficult to achieve. Climate change is expected to alter critical habitat by generally increasing temperature and peak flows and decreasing base flows. Although changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of critical habitat to support successful spawning, rearing, and migration. Habitat actions can address the adverse impacts of climate change on Chinook salmon and steelhead. Examples include restoring connections to historical floodplains and freshwater and estuarine habitats to provide fish refugia and areas to store excess floodwaters, protecting and restoring riparian vegetation to ameliorate stream temperature increases, and purchasing or applying easements to lands that provide important cold water habitat and cold water refugia (Battin et al. 2007; ISAB 2007).

The proposed action will therefore likely occur while climate change-related effects are expected to become more evident within the range of the Snake River Basin steelhead DPS. The grazing permit for this Allotment will run through the end of 2036. Climate change predicts warmer drier climates in much of the Northwest. One of the potential limiting factors in action area streams is water temperature due to yearly variations in seasonal air temperatures and annual snowpack levels. Restricting cattle use of riparian areas will help minimize the effects cattle have on the shade cover of streams, which will help minimize the effects on water temperature. However, it is assumed that streams will continue to increase in temperature with climate change in the future, which will hinder the recovery of anadromous fish in the action area streams.

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). For purposes of this consultation, the action area is defined as the Allotment boundary and trailing routes on and off the Allotment (Figure 1). The Allotment is partially within a priority watershed for SRB steelhead.

The Allotment is located within the Lower Camas Creek (HUC 1706020603) and Upper Camas Creek (HUC 1706020601) on the Salmon-Cobalt and Middle Fork Ranger Districts of the SCNF. This location is approximately 65 air miles southwest of Salmon, Idaho on NFS lands. The Allotment is approximately 63,360 acres in size and approximately 13,100 acres of the Allotment fall within the Frank Church River of No Return Wilderness boundary.

Trailing off the Allotment may take place in HUC 1706020309 Upper Panther Creek and HUC 1706020117 Morgan Creek watersheds. Trailing takes place in upland areas and on roads (Figure 1). Crossing of Panther Creek on designated fords is also allowed and analyzed in this opinion.

The most significant (i.e., largest and most productive) fish-bearing streams present within the Allotment are Camas, West Fork Camas, Silver, Castle, Furnace, Duck, Rams, Arrastra, Birdseye, Lost Spring, Flume, and Martindale Creeks (Table 7). Panther and Morgan Creeks could be affected by the proposed livestock trailing activities in localized areas, primarily at the Panther Creek ford, but potentially along the remainder of the trailing route. Steelhead migrate through, spawn, and rear in the majority of these streams and the action area contains designated critical habitat for SRB steelhead (Table 7).

Table 7. Miles of Snake River Basin steelhead occupied habitat and miles of designated critical habitat by stream and Unit within the Camas Creek Grazing Allotment - adapted from the final Biological Assessment.

Unit	Species	Stream	Use Type	Miles	
				Present	Designated Critical Habitat
Lower Silver Creek	Steelhead	Silver Creek	Spawning and Rearing	3.15	3.15
		Lost Spring Creek	Spawning and Rearing	1.26	0
		Duck Creek	Spawning and Rearing	0	0.03
		Camas Creek	Spawning and Rearing	2.54	2.54
	Total Steelhead Miles			6.95	5.72
West Fork	Steelhead	Camas Creek	Spawning and Rearing	0.61	0.61
		West Fork Camas	Spawning and Rearing	5.26	5.26
		Flume Creek	Potential Rearing	0.91	0.97
		Martindale Creek[1]	Spawning and Rearing	0.55 presence/ 0.11spawning	1.04
	Total Steelhead Miles			7.44	7.88
Camas Creek	Steelhead	Camas Creek[1]	Spawning and Rearing	6.56	6.56
		Castle Creek	Spawning and Rearing	0.66	0.66
		Furnace Creek	Spawning and Rearing	0.21	0.21
	Total Steelhead Miles			7.43	7.43

Unit	Species	Stream	Use Type	Miles	
				Present	Designated Critical Habitat
Castle Creek	Steelhead	Castle Creek[1]	Spawning and Rearing	4.1	2.46
		Furnace Creek	Spawning and Rearing	4.58	3.32
	Total Steelhead Miles			8.68	5.78
Upper Silver Creek	Steelhead	Arrastra Creek[1]	Spawning and Rearing	1.54	0
		Birdseye Creek	Spawning and Rearing	0.46	0
		Silver Creek[1]	Spawning and Rearing	2.97	0.07
	Total Steelhead Miles			4.97	0.07

[1]Short sections of this stream also occur on private lands and are considered part of the action area.

2.4. Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. 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 consultations, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

The action area is used by all freshwater life history stages of threatened Snake River Basin steelhead. Habitat conditions have been influenced by several activities occurring within the action area, including but not necessarily limited to: road development, livestock grazing, and recreation (e.g., hunting, fishing, hiking, trail riding, etc.) Environmental baseline conditions in the action area are described further below.

2.4.1. Water Temperature

Water temperature influences many aspects of salmonid fish life history, including reproduction, growth, and migration (Bjornn and Reiser 1991). PACFISH/INFISH identifies a rearing temperature criteria of less than 64˚F and a spawning temperature criteria of less than 60˚F as components of its suite of RMOs (NMFS 1998). Water temperature conditions in the Upper and Lower Camas Creek watersheds are functioning appropriately for rearing and functioning at risk respectively for spawning and incubation relative to these criteria. The SCNF's BA suggests water temperatures, along with instream sediment levels, are the two most likely factors limiting fisheries production in the action area.

The SCNF's BA provided extensive water temperature data for sites across the action area and was used to generate the following summary. Overall, observed water temperature regimes within the Allotment have generally fallen within PACFISH water temperature criteria, but individual streams and stream reaches have periodically displayed periods of elevated temperatures beyond optimum ranges for both spawning and rearing. Elevated temperature regimes are most notable in Silver Creek (where most private inholdings and the most extensive road network exist), and, to a lesser extent, mainstem Camas Creek downstream of Silver Creek's confluence. Strong diel fluctuations (e.g., approximately 10ºF) may moderate Camas Creek water temperatures to some degree, as evidenced by continued Chinook salmon spawning in reaches where and while temperature thresholds are being exceeded. Silver Creek water temperatures have regularly exceeded both PACFISH rearing and spawning temperature criteria for extended periods during summer months. Silver Creek's elevated summer water regimes are believed to be due primarily to the combination of numerous small beaver dams in the lower reaches of the stream and the additional warming influences of two small shallow private land reservoirs; one on mainstem Silver Creek and one on its tributary Rams Creek. There are three diversions in Upper Silver Creek that likely disturb peak/base flows.

In addition, past mining activities in the upper reaches of Silver Creek may be continuing to influence temperature regimes throughout the mid and lower reaches of the stream.

The remaining major tributary streams within the Allotment, including Furnace, Castle, Birdseye, West Fork Camas, and Arrastra Creeks, while generally meeting salmonid rearing temperature criteria, may occasionally exhibit brief exceedances of spawning temperature criteria. Each of these streams, however, appear to be providing overall cooling influences to their respective receiving waters in mainstem Camas Creek and Silver Creek during summer months. The warming influence Silver Creek has on mainstem Camas Creek is somewhat mitigated by the introduction of cooler West Fork Camas Creek water a short distance downstream from the confluence of Silver Creek.

2.4.2. Sediment

Stream sediment conditions can influence fish incubation success as well as rearing habitat quantity and quality and fish food base productivity (Bjornn and Reiser, 1991). The SCNF's Watershed Program has collected stream sediment data, using the core sampling methodology, since 1993.

Analysis of core sampling data correlates measured levels of depth fines in spawning habitats to predicted egg incubation success values determined by Stowell et al. (1983). Results of all assessments are expressed as percent fines less than a quarter-inch in diameter. Analysis of depth fines additionally considers drainage geology. The streams with ESA-listed fish within the action area are primarily in sedimentary geology with the headwaters of Rough Canyon Creek being in quartzite geology. As used by the SCNF, during ESA informal consultation on steelhead and bull trout *Watershed Biological Assessments for Ongoing Activities* (1998–2000), the following are the evaluation criteria for stream sediment based wholly or primarily in sedimentary geology[1]:

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[1] The SCNF and NMFS previously agreed (SCNF 2005) to the following sediment functionality rating criteria to capture localized geologies not accurately represented by the PACFISH standard of 20 percent:
Quartzite geology: ≤20 percent depth fines (<1/4 inch diameter) = functioning appropriately; 21–25 percent depth fines = functioning at risk; >25 percent depth fines (<1/4 inch diameter) = functioning at unacceptable risk.
Granitic, volcanic or sedimentary geology: ≤25 percent depth fines = properly functioning appropriately; 26-29 percent depth fines = functioning at risk; >30 percent depth fines = functioning at unacceptable risk.

- ≤25 percent depth fines (less than1/4-inch diameter) = Properly Functioning

- 26–29 percent depth fines (less than1/4-inch diameter) = Functioning at Risk

- greater than 30 percent depth fines (less than1/4-inch diameter) = Not Properly Functioning

Core sampling is used in trend monitoring to determine the amount of percent fines within the stream's substrate. Anadromous streams receive a 6-inch dig and resident fish streams receive a 4-inch dig. The amount of percent fines is used in determining the stream's biotic potential (Stowell et al. 1983). Biotic potential is the condition of spawning substrate quality, which maximizes survival and emergence of fish embryos.

Stream sediment conditions are functioning at risk in both the Upper and Lower Camas subwatersheds. The SCNF has monitored sediment levels (i.e., fines at depth) at numerous sites within the Allotment since 1994. Monitoring sites are located on mainstem Camas (three sites), West Fork Camas, Silver (two sites), and Castle Creeks. Two mainstem Camas Creek sites, along with the West Fork Camas Creek site, are located to monitor sediment conditions within the Meyers Cove exclosure. The upper Camas Creek site and sites on Silver and Castle Creeks monitor tributary sediment conditions outside of the exclosure area. Most recent surveys (Sediment - Mean Percent Fines less than a quarter of an inch at Depth) include West Fork Camas Creek 1A (2018) 21.9 percent, Camas Creek 1A (2018) 27.1 percent, Camas Creek 2A (2019) 23.4 percent, Camas Creek 3A (2019) 29.7 percent. Castle Creek 1A (2018) 19.7 percent, Silver Creek 1A (2019) 33.4 percent and Silver Creek 2A (2018) 42.5 percent.

Both of the Silver Creek sites have exhibited elevated levels of fines throughout the period of record. Review of the past sediment data at long-term monitoring sites, Silver Creek 1A and 2A, show both have improved since the previous readings in 2017 and 2014 respectively. Forest-wide SCNF monitoring has shown these values to be typical of streams with extensive beaver complexes (NMFS 2015). While the individual dams serve to trap and hold large volumes of sediment, some level of "leakage" between dams generally occurs during spring runoff, producing high levels of fines within free-flowing reaches between the complexes. While individual yearly observations have been somewhat variable, the general long-term trend at the Lower Silver Creek site appears to be a slight improvement since 2017. While the monitoring period of record is shorter at the Upper Silver Creek survey site, observed levels of fines were generally similar to those observed in Lower Silver Creek whenever both upper and lower sites were surveyed. However, the most recent reading (42.6 percent), taken in 2018, indicates conditions are functioning at unacceptable risk. The elevated sediment levels in mainstem Silver Creek appear to be due to the presence of numerous small beaver dams along a significant portion of the stream course. In addition, two private reservoirs and multiple small diversions exist in the watershed also likely impact sediment and temperature levels.

Monitoring data on Castle Creek indicate the stream is effectively flushing sediments to mainstem Camas Creek. Castle Creek has consistently met SCNF sediment goal levels throughout its monitoring period and is functioning appropriately.

Data from three monitoring sites within the Meyers Cove exclosure (two lower sites on Camas Creek 1A/2A and one on West Fork Camas) have shown relatively high fine sediment levels with a general pattern of substantial increases and decreases; believed to be related to a high runoff events. Sediment levels peaked in the early 2000s and then decreased to levels that are generally close to or below the SCNF's 25 percent RMO for sedimentary/volcanic geologies. The exclosure area reflects a major depositional reach within the Allotment, with stream gradient decreasing and valley width increasing significantly from the steeper, more confined upstream reaches of Camas Creek between White Goat Creek and Silver Creek and upper reaches of the West Fork Camas Creek. It is believed that the observed peaks in sediment levels reflect a strong influence of high runoff flows on sediment transport and deposition within the action area. Given the observed variability in sediment levels over the recording period, it would not be uncharacteristic to observe similar fine sediment peaks following additional high runoff years, followed by periods of recovery.

2.4.3. Greenline to Greenline Width

The GGW is defined as the non-vegetated distance between the green lines on each side of the stream. It provides an indication of the width of the channel, reflecting disturbance of the streambanks and vegetation. As stream channel margins are disturbed by trampling or excessive vegetation consumption, streams may erode the streambanks, causing a lateral erosion of the streambank and streamside vegetation. This results in a shifting out, or widening of the distance between green lines within the non-vegetated channel (Burton et al. 2011). The GGW reflects influences of grazing and other disturbances on channel dimensions such as W:D. Because changes rapidly occur at the greenline, the land manager can make an early evaluation of effects (Winward 2000). The GGW has been monitored at DMA MIM sites. While there is no established metric or value associated with stream functionality, GGW indicates trend in channel dimension (i.e., narrowing or widening) when used with greenline composition and bank stability.

Current Allotment GGWs, recorded in meters, were: Camas Creek (M226) 14.3 in 2019; Castle Creek (M227) 5.0 in 2019; Furnace Creek (M228) 4.9 in 2019; Lower Silver Creek (M229A) 6.0 in 2017; Upper Silver Creek (M230) 3.3 in 2017; West Fork Camas Creek (M242) 6.6 in 2019; Camas Creek in the exclosure (M306) 17.4 in 2018; and Birdseye Creek (M324) 2.4 in 2020. The United States Forest Service (USFS) indicates that since 2014, six of the eight sites have been monitored twice and data do not suggest any stream widening except for Castle Creek. However, the USFS suggests in the BA that some widening could have occurred in 2017 due to heavy run-off conditions that were documented across much of the area. Since 2012, this area has only been grazed in 2017 and 2018, and a long-term trend reading is scheduled to occur again at this site in 2024. Riders are required seven days per week while livestock are in the Castle Creek Unit.

2.4.4. Streambank Condition

Streambank condition can influence the overall stability and resilience of stream channels. Eroding streambanks increase turbidity and can contribute large amounts of fine sediment deposition, which degrade fish habitat and cause additional stream channel adjustment.

The Camas Creek Allotment is partially within a PACFISH Priority Watershed (Figure 4.4 in the BA). PACFISH identifies an RMO of 80 percent or greater bank stability for stream outside of priority watersheds and 90 percent or greater bank stability for those streams inside of priority watersheds.

MIM protocol measures bank stability at all of the MIM sites. The most recent MIM readings of bank stability were: on Camas Creek (M226) 94 percent in 2019; Castle Creek (M227) 96 percent in 2019; Furnace Creek (M228) 100 percent in 2019; Lower Silver Creek (M229A) 97 percent in 2017; Upper Silver Creek (M230) 100 percent in 2017; West Fork Camas Creek (M242) 95 percent in 2019; Camas Creek in the exclosure (M306) 100 percent in 2018; and Birdseye Creek (M324) 100 percent in 2020. Based on information provided in the BA, all monitored streams within the Allotment are meeting the priority watershed PACFISH RMO of 90 percent or greater streambank stability.

Within the action area, long-term streambank stability monitoring (non-grazing related) had been conducted on mainstem West Fork Camas, Camas, Castle, and Silver Creeks by SCNF hydrology monitoring crews from 1994 until 2015. All sites monitored in 2014 and 2015 were meeting or close to meeting the 80 percent back stability objective for streams outside of the priority watershed except for one site on Camas Creek. The Allotment was not grazed since 2012 and could not have influenced stability readings taken in 2014 and 2015. In addition, the Camas Creek sites are not grazed because one of the sites is inside the Meyer's Cove exclosure, and one is located upstream of the exclosure within the Camas Unit. The Camas Unit is not subject to grazing use and is only proposed to be used as a trailing route.

2.4.5. Riparian Habitat Conservation Areas

The condition of riparian vegetation can strongly influence aquatic habitat quality and fish productivity. Removal of riparian vegetation can result in negative impacts to fish populations (Platts and Nelson 1989). The analysis of RHCAs focuses on greenline successional status (GES) and woody species recruitment. The SCNF Plan forest-wide GES objective is 61 or greater. An ecological status rating greater than 86 is indicative of a potential natural community (PNC) (Winward 2000).

Riparian monitoring sites were established on the Allotment in the early-to-late 1990s. The most recent survey data is as follows:

Camas Creek (M226): GES was identified at late-seral (72) with a 94 percent bank stability during its most recent baseline reading in 2019. This DMA is located in the Camas Creek Unit, which is used for trailing livestock only. Seral status is considered static and streambank stability has improved from 71 percent in 2014 to 94 percent in 2019.

Castle Creek (M227): GES was identified at mid-seral (60) with a 96 percent bank stability during its most recent baseline reading in 2019. Greenline ecological status has dropped significantly between readings, from 92 (PNC) to 60 (mid-seral) in 2019 and the BA indicates that it is likely attributed to heavy run-off conditions in 2017. Bank stability at this site has improved from 70 percent in 2014 to 96 percent in 2019.

Furnace Creek (M228): GES was identified at late-seral (73) with a 100 percent bank stability during its most recent baseline reading in 2019. When this site was read in 2014, bank stability rating was 91 and GES rating was 63.

Silver Creek (M229A): GES was identified at late-seral (86) with a 97 percent bank stability during its most recent baseline reading in 2017. The DMA was relocated in 2017 because a beaver dam covered the previous DMA location (M229).

Silver Creek (M230): GES was identified with a potential downward trend at mid-seral (59) and a 100 percent bank stability during its most recent baseline reading in 2017. This unit had not been grazed by livestock since 2012 at the time data was collected; even so, a downward trend in the GES rating seems to exist (a direct comparison cannot be made as collection methodologies were not the same during the previous reading done in 2009). Camas Creek area experiencing a 10 to 25-year flood in the spring of 2017 and may have contributed to the lack of seedlings observed when woody species recruitment was monitored.

West Fork Camas Creek (M242): GES was identified at late-seral (82) with a 95 percent bank stability during its most recent baseline reading in 2019. When this site was read in 2014, bank stability rating was 84 and GES rating was 53.

Camas Creek Exclosure (M306): GES was identified at mid-seral (55) with an upward trend and a 100 percent bank stability during its most recent baseline reading in 2018. When this site was read in 2014, bank stability rating was 86 and GES rating was 43. This area is not grazed by livestock.

Birdseye Creek (M324): GES was identified at PNC (93) with a 100 percent bank stability during its most recent baseline reading in 2020. When this site was established in 2015, bank stability rating was 95 and GES rating was 81.

2.4.6. Snake River Basin Steelhead Presence in Action Area

Using information presented in Table 5.2 of the SCNF's BA (USFS 2021), which was based on observed species distribution in the action area, it is possible that steelhead spawn in up to 9.72 miles of mainstem Camas Creek, 5.31 miles of West Fork Camas Creek, 4.76 miles of Castle Creek, 4.79 miles of Furnace Creek, 8.62 miles of Silver Creek, 1.54 miles of Arrastra Creek, and 0.46 miles of Birdseye Creek. These lengths reflect continuous mapping reaches and are likely significant overestimates of actual spawning areas within Allotment streams as not all habitats have suitable spawning characteristics.

The only known available data on steelhead redds in Camas Creek are displayed in Table 8 and Table 9. These data were collected intermittently between 1981 and 1998 (Leth et al. 2000; Thurow 1982; Thurow 1983). These numbers are unlikely to reflect the total number of redds that occurred in single brood years due to difficult monitoring conditions during the spawning period. Thurow (1982) produced a spawning ground map depicting known and scattered spawning areas (Figure 3). Known spawning areas in the action area include the Meyers Cove area, West Fork Camas Creek, and short reaches of Camas Creek near the Furnace and White

Goat Creek confluences. Scattered spawning is anticipated in smaller tributary streams (i.e., Furnace, Castle, Silver, Arrastra, and Birdseye).

The USBWP (2005) identify a general spawning periodicity for steelhead in the Camas Creek drainage ranging from the third week of March through the second week of June. However, Thurow (1985) provided more specific information indicating approximately 80 percent of observed redds/spawners in Camas Creek (1968 to 1983) occurred between May 1 and May 15, with 20 percent of observances occurring between May 16 and May 31. Additional spawning likely occurred after these dates but survey conditions are typically unsuitable due to high discharge and turbid water making accurate counts difficult (Thurow 1985). The USBWP periodicity chart (2005) suggests steelhead incubation occurs through the second week of July (i.e., July 14). However, observations by Thurow (2014) in other Middle Fork drainages suggest that steelhead incubation in high elevation Middle Fork Salmon River drainages can potentially extend through mid-August if water temperatures are cold and spawning finished late (Thurow 2014). The BA applied an emergence date of July 15, based on water temperature data for the area.

The action area's steelhead spawning habitat ranges from about 5,000 feet to 6,000 feet elevation with the core spawning areas believed to lie between about 5,000 and 5,500 feet. Prescribing one date as the definitive end of emergence for a broad geographic area is difficult and prone to given potential annual variability in climate and run size. Given the available water temperature data from the action area, and the limited available information on steelhead spawning periodicity (Thurow 1985) which suggests 80 percent of the identified redds were established prior to May 15, steelhead incubation in the core spawning areas is unlikely to extend beyond mid-July; defined as July 15 for this document. This date is consistent with the USBWP's (2005) periodicity chart. Delayed emergence, similar to Thurow's (2014) suggestions, could potentially occur in higher elevation portions of the action area but would require late initiation of spawning activity and/or unusually cold water temperature regimes. For this Opinion we considered steelhead emergence in Furnace, Castle, Birdseye, and Arrastra Creeks could potentially extend until early August for some individuals in some years. Review of the SCNF's water temperature data suggests that water temperatures are warming rapidly in late June through July and incubation extending beyond early August is likely an infrequent event.

Table 8: Camas Creek Snake River Basin steelhead adult/redd counts 1981 to 1998.

<table>
<tr><th>Stream Segment</th><th>1981</th><th>1982</th><th>1983</th><th>1984</th><th>1985</th><th>1986</th><th>1987</th><th>1988</th><th>1989</th><th>1990</th><th>1991</th><th>1992</th><th>1993</th><th>1994</th><th>1995</th><th>1996</th><th>1997</th><th>1998</th></tr>
<tr><td colspan="19">Camas Creek</td></tr>
<tr><td>Duck to W. Fk. Camas</td><td>-</td><td>-</td><td rowspan="2">nc *</td><td rowspan="3" colspan="3">nc</td><td rowspan="2">27</td><td>-</td><td>-</td><td>24</td><td>3</td><td>1</td><td rowspan="3">nc</td><td>3</td><td>3</td><td>1</td><td rowspan="3">nc</td><td>1</td></tr>
<tr><td>W. Fk. to Furnace Cr.</td><td>-</td><td>-</td><td>-</td><td>-</td><td>31</td><td>23</td><td>2</td><td>9</td><td>7</td><td>5</td><td>-</td></tr>
<tr><td>Camas Totals</td><td>4</td><td>3</td><td>nc *</td><td>27</td><td>-</td><td>-</td><td>55</td><td>26</td><td>3</td><td>12</td><td>10</td><td>6</td><td>1</td></tr>
<tr><td colspan="19">West Fork Camas</td></tr>
<tr><td>Mouth to RM 1.7</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>6</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
</table>

*nc – Not counted due to poor survey conditions.

Table 9: Camas Creek steelhead redd surveys (1987–1996).

Location	# Years Surveyed	Typical Miles Surveyed	Range Redds Observed	Min Redds/Mile	Max Redds/Mile	Average Redds/ Mile
West Fork Camas Cr.	1	1.71	6	3.5	3.5	3.5
Camas Cr. (Duck - W. Fk.)	10[a]	2.03	1-24	0.5	11.8	2.54
Camas Cr. (Duck – Furnace Cr.)	1	7.67	27	3.5	3.5	2.45[c]
Camas Cr. (W. Fk. - Furnace)	7[b]	5.64	2-31	0.35	5.49	

[a] Three years water was too turbid to survey. These years were not used in calculations of average redds/mile.
[b] One year water was too turbid to survey. These years were not used in calculations of average redds/mile.
[c] Included the Duck-Furnace Cr. reach surveyed in 1987 due to majority of miles overlapping.

Steelhead use of Silver Creek is believed to be low due to the prevalence of beaver ponds and high sediment levels between ponds. These conditions provide low quality spawning habitat. In addition, beaver dams may intermittently block migrating adults from accessing upper tributaries such as Arrastra and Birdseye Creeks since many of the dams lack downstream jump pools and the dams can be relatively high. Arrastra and Birdseye Creeks are small streams with high gradient, located well upstream of Silver Creek's mouth. Because of the beaver dams' influence and distance from Camas Creek, steelhead spawning in these streams may occur, but is expected to be at low densities. Steelhead spawning in Rams Creek, another potential steelhead stream in the Silver Creek watershed, is limited to the lowermost private land reaches below the impassible Rams Creek Dam. These private reaches are reported to be fenced and are not grazed by Federally-authorized livestock.

Castle and Furnace Creeks, tributaries to upper Camas Creek, are likely to support greater steelhead redd densities than the smaller Silver Creek tributaries. However, it is unlikely that redd densities in these two tributaries would be as high as observed in mainstem Camas Creek or West Fork Camas Creek given their higher gradients and generally larger-sized substrates, which limit available spawning sites to isolated areas. Duck and Martindale Creeks are unlikely to support steelhead spawning due to their small size.

Climate Conditions: As previously stated in Section 2.2.1, climate change has the potential to affect ecosystems in nearly all tributaries throughout the Snake River. Given the increasing certainty that climate change is occurring and is accelerating, NMFS anticipates steelhead and their associated habitat within the action area will be affected. Climate change is expected to alter aquatic habitat by impacting streamflow and temperature regimes. These effects, in combination with other baseline conditions within the action area, may lower juvenile salmonid survival rates by impacting juvenile growth, movement, and survival (Walters et al. 2013). Additionally, the effects of climate change are expected to decrease the capacity of habitat within the action area to support successful spawning, rearing, and migration.

The impact of grazing on riparian habitat within the action area has the potential to accelerate stream temperature increases caused by climate change. Overgrazing of riparian vegetation and stream widening due to bank alteration from livestock could result in less shading and shallow stream reaches, therefore causing an increase in water temperature. Additionally, the timeframe for implementing the proposed action will occur while climate change-related effects are expected to become more evident within the range of the SRB steelhead DPS.

NMFS completed the recovery plan for SRB steelhead in 2017 (NMFS 2017). The recovery plan discusses threats to the species, viability criteria, and actions recommended to achieve species recovery. Although the proposed actions does not implement any of the identified recovery actions, we did not identify any conflict with plans' specific recommendations and goals of the RMOs.

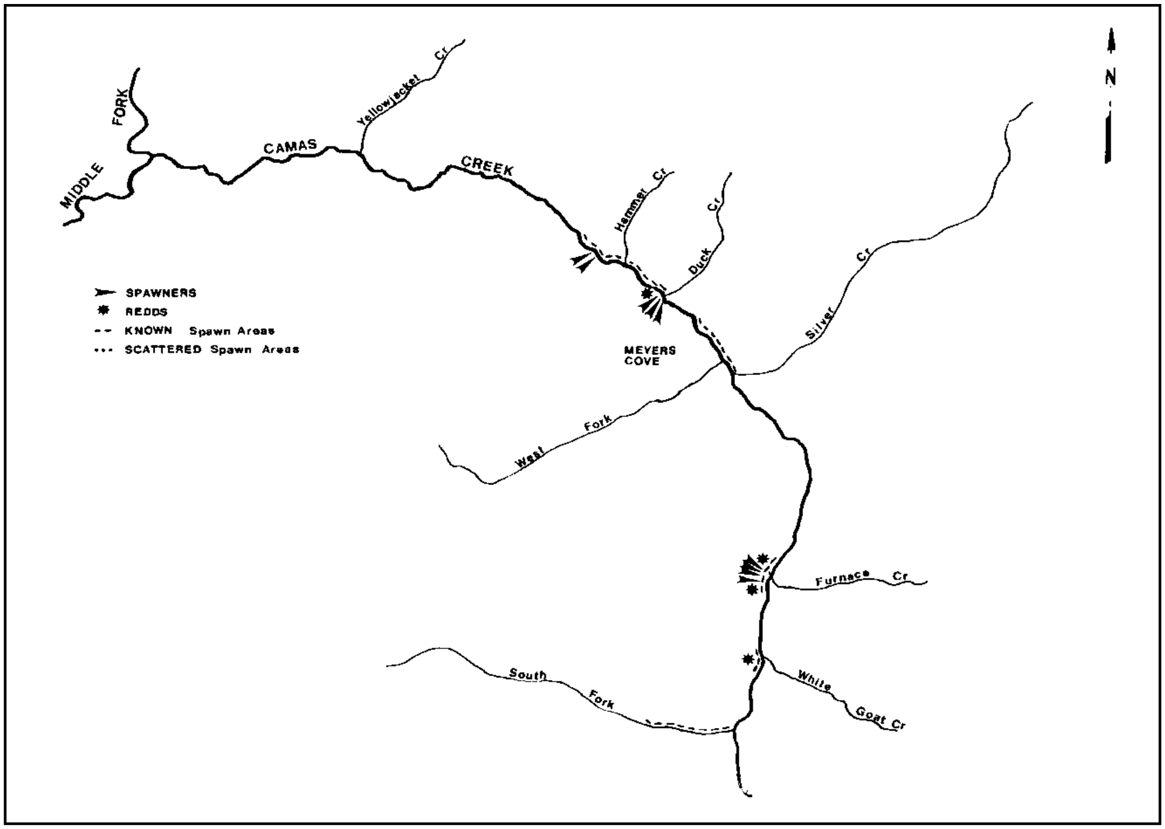

Figure 3. Steelhead spawning ground survey map of Camas Creek, 1981

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 action, including the consequences of other activities that are caused by the proposed action (see 50 CFR 402.02). A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action 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 action, we considered the factors set forth in 50 CFR 402.17(a) and (b).

2.5.1. Effects to Steelhead Juveniles and Adults

Livestock grazing has the potential to affect SRB steelhead by disturbing adults and rearing juveniles, and also by trampling incubating redds as cows wade through or cross instream habitats. Adult steelhead are likely to have completed spawning and will have moved out of the action area or died prior to livestock presence on the Allotment. However, there could be years where steelhead adults could be present for brief periods during the proposed grazing period if they arrive there late. Juvenile steelhead are likely to be present in most streams during the grazing season.

For adult and juvenile steelhead, disturbance can lead to behavioral changes that can result in indirect effects through alteration in feeding success, increased exposure to predators, or displacement into less suitable habitat. Although these effects can result in injury or death, we expect that adults and juveniles affected by this action to be able to access nearby cover and avoid injury or death (behavioral effect only). Within the action area bank stability is high, indicating that sufficient escape cover to protect fish in the short term is likely available from overhanging banks. NMFS expects behavioral modifications will be infrequent and minor because habitat conditions in the action area should provide suitable escape cover. The SCNF and permittees will employ the following measures to reduce the amount of time cows spend in riparian areas: maintaining off-stream water sources; placing salt at least a quarter mile from streams; weekly herding of cows out of riparian areas; using designated crossings in most cases to move livestock across streams when changing pastures; maintaining fencing, and adhering to riparian utilization standards. The natural inaccessibility of many of action area streams, due to topography and dense riparian vegetation or beaver dams, further limits the potential for these effects to occur. For these reasons fish disturbances to adult and juvenile steelhead related to livestock grazing on the Allotment will be infrequent and minor, and will not result in harm.

2.5.2. Effects to Redds

There is potential for SRB steelhead redds to be exposed to grazing cattle in the following situations and locations:

- Locations where trampling is likely to occur are streams within the Lower Silver Creek Unit and the West Fork of Camas Creek Unit grazed before the July 15 end of steelhead incubation. These streams include Silver Creek (3.15 miles) and Lost Spring Creek (1.26 miles) within the Lower Silver Creek Unit, and West Fork Camas Creek (5.26 miles) and Martindale Creek (0.11 miles) in the West Fork Unit (Table 7 and Figure 3). Active trailing through the Camas Creek Unit can take place after July 7. Information provided in the BA (Section 6.4.1.2) details the quantity of streams, miles of spawning/rearing habitat, and the miles of streams accessible to livestock within the Allotment. Those sections provide important information that is used in this and future sections of this opinion and are incorporated by reference.

- Redd trampling at the Camas Creek ford crossings, between July 7 and approximately July 15, is not likely to occur because most steelhead incubation is likely to be complete prior to the dates used. In addition, no suitable spawning habitat is present (i.e., hardened crossings or lack of habitat), and if suitable habitat develops, the SCNF has proposed design criteria to prevent trampling from occurring at ford crossings.

- Trampling is not likely to occur in other locations because of unsuitable spawning habitat inaccessible reaches due to beaver dams, topography or fencing, or timing of redds and cow presence do not overlap.

Many of the susceptible reaches and the durations of grazing exposure are overestimates since spawning habitat is not equally distributed, grazing will not always occur for the maximum time period, and most steelhead incubation is likely to be complete prior to the dates used in the analysis (i.e., July 15 and August 7). This significantly reduces the likelihood of redd trampling across the Allotment.

If steelhead redds are present, and eggs are still incubating when crossings occurred, steelhead embryos are likely to be killed. This could occur anytime livestock are wading or crossing streams from arrival on the Allotment up until July 15.

NMFS used the only known redd density data from the Camas Creek watershed to represent the likely redd densities within action area streams (Table 8). As previously mentioned, known steelhead spawning areas in the action area occur in Meyers Cove, West Fork Camas Creek, and in a short reach of Camas Creek near the Furnace Creek confluence. Scattered spawning is anticipated in the smaller tributary streams such as Silver, Furnace, Castle, Arrastra, and Birdseye Creeks, with similar potential densities near the Camas Creek fords. Because spawning suitability and redd densities vary between the known and scattered spawning areas, NMFS applied different redd density estimates for each area. The surveyed reaches were almost exclusively the known spawning areas and not scattered reaches. Therefore, NMFS reduced the observed redd densities in known areas by 50 percent to estimate potential redd densities in streams with scattered spawning. The applied redd density values are as follows: (1) known spawning areas – 3.5 redds/mile; and (2) scattered spawning areas – 1.75 redds/mile. Stream lengths on privately held portions of the action area were not included in these calculations given they are fenced and inaccessible to authorized livestock.

Applying the known spawning area density to livestock accessible reaches of Camas and West Fork Camas Creeks grazed during steelhead incubation results in up to 12 redds potentially being exposed to livestock trampling (includes an assumption that no more than one redd could be present between the Camas Creek fords annually). Applying the scattered spawning area density to the livestock accessible reaches of Silver and Castle Creeks' grazed during steelhead incubation results in six redds being exposed to potential livestock trampling. Potential trampling rates and effects of livestock trampling on the 18 redds potentially exposed are discussed below.

Of the18 steelhead redds that could potentially be exposed to trampling, six are located in the Lower Silver Creek Unit, 11 within the West Fork Unit, and one within Camas Unit (trailing).

Gregory and Gamett (2009) reported that cattle trampled 12 percent to 78 percent of simulated bull trout redds while grazing the Federal pastures they evaluated. It is not known if the evaluated pastures were grazed to the same annual use indicators proposed for this Allotment.

They did note that stocking intensity [number pairs/capable[2] grazing area (hectares)/grazing days] significantly influenced redd trampling rates with the highest stocking intensity generating the highest observed trampling levels and vice versa. Using maximum potential stocking rates and assuming approximately 21 days of use for both pastures, the Lower Silver Creek and West Fork Units have a low stocking intensity index (0.04 for each Unit). These are the only two Units with the potential for steelhead redd trampling under the proposed action.

Cattle typically use the high forage areas located in hillside meadows and ridge tops well above the streams during steelhead incubation. Because permittees and the SCNF intend to reduce livestock use of riparian areas as much as possible via frequent riding and other management techniques, NMFS assumed a potential trampling rate of 10 percent, which is slightly lower than the 12 percent rate identified by Gregory and Gamett (2009) for the lowest stocking intensity index of pastures evaluated (0.04). This assumption is considered reasonable since Gregory and Gamett's (2009) study included streams within allotments where grazing use was focused near or adjacent to at risk redds; and exposure risk in this Allotment occurs when cattle drift away from the upland grazing areas and reach the channel or during watering or channel crossings. For steelhead, this estimate may still be high, as bull trout are fall spawners, and cattle use of riparian areas is higher in late summer/fall than early spring (McInnis and McIver 2009; Parsons et al. 2003) when steelhead redds are incubating. Additionally a rate reduction was warranted given the assumed effectiveness of upland water and prescribed herd management efforts to minimize livestock use of riparian zones (Ehrhart and Hanson 1997; Kinch 1989; Leonard et al. 1997; McInnis and McIver 2009; Parsons et al. 2003; Wyman et al. 2006).

Applying the 10 percent redd trampling rate to the maximum number of steelhead redds that could be present in the affected streams (18 redds) results in up to two redds potentially being trampled by livestock annually ($18 \times 0.1 = 1.8$) (Table 10). This consultation addresses the next 15 grazing seasons with potential for livestock overlap with steelhead incubation; resulting in up to 30 trampled steelhead redds over the 15-year consultation term. This approach likely overestimates potential redd trampling for the following reasons: (1) Trampling rate reductions likely do not fully account for the reduced riparian use during steelhead incubation periods (i.e., spring grazing); and (2) stream discharge during spring grazing is often high and discourages livestock from entering streams beyond the margins.

Trampling of redds is not expected to occur at fording locations. Trailing through Camas Creek will only occur at established fords, occurring after July 7 only, resulting in just 1 week of potential overlap with incubating steelhead. Substrate at stream fords is often compacted and unsuitable for spawning. In addition, the likelihood of trampling at the three Camas Creek ford crossings is likely unrealistic given the limited extent of habitat affected within what is generally considered unsuitable spawning habitat. For these reasons, trampling of up to two steelhead redds annually for the next 15 years is used only to gauge the relative risk of the potential impact and should not be viewed as an absolute number of redd trampling events likely to occur.

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[2] Gregory and Gamett (2009) used the term "suitable area" but as defined in their paper (i.e., areas <30 percent slope, <1,600 meters from water, and producing at least 225 kg/ha of useable forage) the current and correct term if "capable area" (Personal Communication, Mike Helm, SCNF GIS Specialist, September 9, 2014).

NMFS converted the number of potential redd trampling events to adult equivalents that may be lost from each population. Roberts and White's (1992) study of angler related trampling, the only available information for livestock trampling, documented highly variable egg mortality, dependent on the developmental stage of the eggs/pre-emergent fry trampled (Range = 0 percent to 43 percent for single trampling events). Data in Roberts and White (1992) and unpublished data acquired from the authors indicate green eggs and the first two-thirds of the eyed-egg stage (Part 1) were the most resilient to trampling, experiencing 4 percent to 8 percent mortality, with no statistical difference between controls and test. Pre-emergent fry were more susceptible to trampling with approximately 14 percent mortality. The later third of the eyed-egg stage, between chorion softening and hatching, were the most sensitive to trampling at approximately 43 percent mortality. Their study evaluated trampling of simulated trout redds, whose egg burial depth is noticeably shallower than steelhead, and it is unknown how similar the effects of livestock trampling of anadromous fish embryos actually is. For this analysis NMFS has assumed the effects are similar since this is the best available information.

Table 10: Calculated maximum number of Snake River Basin steelhead redds and range of potential trampled redds by Unit.

Unit	Miles Potential Spawning Habitat	Estimated Spawning Miles Accessible to Cattle Grazing During Incubation Period	Estimated Max # Steelhead Redds in Unit (rounded to whole number)	Estimated Max # Steelhead Redds Exposed to Cattle[e]	Est. # Redds Potentially Trampled[f] (Assumed #)
Lower Silver Creek	6.99	3.52[a]	12	6	0.6 (1)
West Fork	5.99	3.07[b]	21	11	1.1 (1)
Camas Creek	7.43	0.1[c]	26	1	0.1 (0)
Castle Creek	8.69	0[d]	15	0	0 (0)
Upper Silver Creek	4.96	0[d]	9	0[g]	0

[a] Reduced by 2.54 miles to reflect Meyers Cove exclosure and cattle guard preventing access along Camas Creek, and by 20% on Silver Creek and Lost Spring Creek due to vegetation, beaver dams, and land forms restricting cattle access there.
[b] Stream length reduced by 0.61 miles in Camas Creek, and 1 mile in West Fork Camas Creek to account for approximate exclosure. Remaining miles were reduced by 30 percent due to vegetation and land forms restricting cattle access.
[c] Only trailing is authorized in the Camas Creek Unit. Retained 0.1 mile for fords potentially used during trailing, but defaulted assumption was one redd trampled annually between all fords.
[d] Grazing occurs on Unit after steelhead spawning and incubation.
[e] Number of miles cattle have access to spawning habitat. Estimated maximum redd density based on either 3.5 (known spawning area) or 1.75 (scattered spawning area) redds/mile.
[f] Calculated based on observed bull trout redd trampling rates reported by Gregory and Gamett (2009); then modified for season of use according to seasonal cattle use patterns provided by McInnis and McIver (2009), and expected cattle aversion to high flows in action area streams during incubation (10 percent trampling rate × maximum number redds exposed to cattle).
[g] Assumed zero exposure due to livestock entering unit near or after emergence and location of entry being upstream of spawning habitat.

Under the proposed grazing schedule, and with the assumed steelhead spawning and emergence timings already discussed, steelhead redds could be exposed to trampling for up to 6 weeks in Lower Silver Creek Unit (June 1 to July 15), up to 30 days in West Fork Unit (anytime between mid-June to July 15), and up to 1 week in Castle Creek. Peak steelhead spawning likely occurs prior to May 15 (Thurow 1985) and the majority of emergence is likely to be complete before the July 15 (Camas and West Fork Camas Creeks) and August 7 (Castle Creek) emergence dates applied in the exposure analysis. Review of the SCNF's water temperature data suggests that water temperatures are warming rapidly in late June through July and incubation extending beyond August 7 is likely an infrequent event in these streams. This means exposed steelhead embryos could range from green eggs in lower Silver Creek to pre-emergent fry (West Fork and Castle Creeks); thus we applied the 14 percent and 43 percent trampling mortality rates to cover the full range of potential effects in each stream. Since Roberts and White (1992) did not detect any statistical difference for green egg trampling mortality versus controls, we did not apply the 4 to 8 percent mortality rate. This is unlikely to bias our results since it was the lowest mortality rate observed, resulting in our consideration of the more adverse impacts (i.e., more conservative).

Steelhead egg-fry survival is approximately 29.3 percent under natural conditions (Quinn 2005). Assuming each redd contains roughly 5,000 eggs (Quinn 2005), and trampling kills 18 to 43 percent of the embryos in a redd (Roberts and White 1992), each trampled redd could result in 263 to 630 fewer fry. Assuming fry-to-smolt survival is 13.5 percent (Quinn 2005), approximately 36 to 85 fewer steelhead smolts would be produced per trampled redd. Applying a conservative smolt-to-adult survival rate of 0.8 percent (USFWS 1998) results in less than one fewer adult equivalent (0.29 to 0.68) per trampled redd. NMFS rounded this number up to one for this analysis. The consultation addresses the next 15 years of potential steelhead exposure (through 2036). If the maximum number of steelhead redds are trampled in those years and the maximum mortality occurs from each trampling, the action could potentially result in up to two fewer adult steelhead annually, or 30 fewer adult steelhead over the next 15 brood years. Snake River Basin steelhead in the action area belong to the Lower Middle Fork Salmon River, Panther Creek, and East Fork Salmon River populations, which are part of the Salmon River major population group (MPG).

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 action 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.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline vs. cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described earlier in the discussion of environmental baseline (Section 2.4).

No state lands occur in the action area. Ongoing private land activities are expected to continue as described in the baseline. No future actions were identified for private lands within the action area. Effects from current management practices on these private parcels were discussed in the environmental baseline, and these are expected to continue at similar rates.

Recreational activities such as hunting, fishing, camping, and off-road vehicle use are likely to continue at levels similar to the past and will have some minor impacts to streams and riparian habitat in the action area. These impacts were included in the current baseline condition where information was available. There are no impacts from new future State or private activities anticipated to cause any discernible impact on SRB steelhead abundance or productivity.

Since the action area consists primarily of Federal land, NMFS is not aware of any additional future State or private activities within the action area that would cause additional effects to a listed species or a designated critical habitat than presently occur. Thus, NMFS assumes that future private and State actions will continue within the action area, at roughly the same level. As such, NMFS is not aware of any additional cumulative effects at this time.

2.7. Integration and Synthesis

The Integration and Synthesis section is the final step in assessing the risk that the proposed action poses to species and critical habitat. 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 (Section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution.

Many steelhead populations are not meeting recovery plan abundance and productivity targets, and the species remains threatened with extinction. Snake River Basin steelhead in the action area belong to the Lower Middle Fork Salmon River, Panther Creek, and East Fork Salmon River populations, which are part of the Salmon River MPG. Summary of viability relative to the Interior Columbia Technical Recovery Team (ICTRT) viability criteria, grouped by MPG shows the natural spawning [i.e., most-recent 10-yr geometric mean (range)] is 3,502 (SD 2,562) and ICTRT productivity (i.e., = 20-yr geometric mean for parent escapements below 75 percent of population threshold) is 1.88 (Table 6). Overall, the information analyzed for the most recent viability review indicates that the Snake River Basin steelhead DPS remains at "moderate" risk of extinction, with viability largely unchanged from the prior review (Ford 2022).

Furthermore, climate factors will likely make it more challenging to increase abundance and recover the species (NMFS 2017). Climate change is expected to alter aquatic habitat by impacting streamflow and temperature regimes. These effects, in combination with other baseline conditions within the action area, may lower juvenile salmonid survival rates by impacting spawning, rearing, and migration for steelhead. However, due to management techniques proposed for the action, livestock grazing in the action area is not expected to significantly contribute to the broader adverse effects of climate change to steelhead.

Regarding the effects of the proposed action, steelhead in the action area could potentially experience adverse effects associated with redd trampling, disturbance, and habitat-related effects. However, the effects of disturbance at the reach scale are expected to be infrequent and minor because of the proposed conservation measures, limited livestock accessibility to the stream, low stocking density, and ability of fish to find cover within the stream reach if disturbed. The effects of habitat-related impacts are also expected to be minor and/or very unlikely to occur at the reach scale to RMOs currently being met in the areas proposed to be grazed, as well as application of conservative annual use indicators and move triggers that have proven effective at maintaining habitat conditions, and implementation of an adaptive management process when and where necessary. The baseline conditions of habitat in the action area are expected to be maintained or to improve over the course of the 15-year action. The main effect to Snake River Basin steelhead will be from the potential trampling of redds. The following adverse effects are expected:

- Up to two Snake River Basin steelhead redds could be trampled annually on the Allotment.

The estimated trampling of up to two Snake River Basin steelhead redds (1.8) could result in approximately two fewer adults returning to the action area for each year of grazing under the proposed action. We consider this to be the maximum number of redds trampled each year despite, the likelihood of livestock trampling the maximum number of redds is low on the Allotment. Effects to individual fish include effects to the VSP (i.e., abundance, productivity, spatial structure, and genetic diversity that support the species' ability to maintain itself naturally at a level to survive environmental stochasticity). However, the anticipated level of effects to individuals are not anticipated to result in any change to abundance or productivity at the population scale. Similarly, the effect at the scale of the MPG (Salmon River MPG) will not change. This is due to the low number of steelhead redds present within the action area and low numbers of livestock being able to access areas of suitable spawning habitat given the wide annual variability in adult and juvenile returns and seasonal variations in habitat use. The proposed action also supports recovery of these populations (and consequently the MPG) because of efforts to improve riparian and instream function over time, which will support increased productivity.

The action area occurs primarily on federal land, and all future activities in the action area will likely be implemented, permitted, or funded by the SCNF and will require separate consultation pursuant to section 7 of the ESA. Therefore, there will be no cumulative effects for the proposed action.

When considering the status of the species, environmental baseline, and cumulative effects, adding in the potential effects from the proposed action will not appreciably increase the risk of extinction for any populations included in the Snake River Basin steelhead DPS. Because the VSP criteria for the populations will not be negatively influenced, neither the current viability nor the recovery potential of the MPGs and DPS will be appreciably diminished.

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 action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of SRB steelhead.

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). “Harass” is further defined by interim guidance as to “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 SRB steelhead. NMFS is reasonably certain the incidental take described here will occur because livestock will graze alongside streams during the redd incubation periods for steelhead. In the opinion, NMFS determined that incidental take is reasonably certain to occur from redd trampling.

2.9.1.1. Steelhead Redd Trampling

Through implementation of the proposed action, grazing is expected to occur in the same time and place as Snake River Basin steelhead egg/embryo incubation for approximately one to three weeks. The proposed off-channel salt placements, preferred upland grazing and water usage in the early season, riding, and conservative move-triggers/annual use standards, as well as inaccessible reaches of the stream for livestock, all help make the likelihood of SRB steelhead redd trampling extremely low, but the potential for redds to be trampled by livestock still exists.

Despite NMFS estimating the number of redds that could be trampled in the preceding opinion, the number of trampled redds will not be used to establish the amount of take for steelhead in this opinion, as it cannot be readily monitored by field personnel within this Allotment. Steelhead redds are constructed in the early spring, and while some redds may be visible early in the season, access to these streams by SCNF personnel is difficult at this time of year due to snow and ice. Peak flows occur approximately during the middle of the spawning period. Ice shelves along stream margins, high flows, and turbid water may potentially make redd inventory in the action area inaccurate and impractical to complete. In addition, substrate around and in any redds identified before peak flows are likely to be reorganized, or covered by substrate deposits following runoff, making redds essentially invisible after flows drop. Thus, it would be impractical to determine how many redds are present in the action area, let alone accurately determine how many of those redds are subsequently trampled by cattle each grazing season. Because circumstances causing take are likely to arise, but cannot be quantitatively measured in the field, NMFS will not identify the amount of take, but will identify a surrogate for incidental take, consistent with 50 CFR 402.14(i).

For the reasons stated above, it is difficult for NMFS to quantify the extent of take for steelhead. There is no known forage utilization or channel measurement indicator that directly correlates to redd trampling rates. However, redd trampling is most likely to occur when cattle concentrate in riparian areas, with trampling occurring when cows cross or enter streams to water. Streambank alteration provides an indication of the amount of time cattle spend in riparian zones, increasing with both the number of livestock present and with the time spent by those livestock in riparian areas. Similarly, the likelihood of redd trampling increases with both the number of livestock present and with the time spent by those livestock in riparian areas. Streambank alteration is already proposed as both a move-trigger and annual use indicator. As such, alteration levels will be measured during routine Allotment monitoring along green lines within the Unit DMAs and elsewhere in the Allotment. Therefore, NMFS will use percent streambank alteration as the surrogate for take for steelhead in this opinion.

The SCNF proposed bank alteration limits of 20 percent or less. The proposed action indicates that the permittee should begin moving cattle at identified move-trigger points, which will be set at levels 5 percent below the limit to ensure the end of season values meet maximum allowed use levels (Table 2). In this opinion, NMFS determined that the proposed move-triggers and annual use standards would help reduce cattle presence in streamside areas such that trampling would be limited to no more than two SRB steelhead redd per year in of the grazing rotation. Therefore, NMFS has established the extent of incidental take limit as:

- In the Lower Silver Creek and West Fork Units, during periods of spawning and incubation (June 1 to July 15), bank alteration shall not exceed: (1) 10 percent where bank stability is less than70 percent; (2) 15 percent where bank stability is 70 percent to 89 percent; or (3) 20 percent where the bank stability RMO is being met (i.e., ≥90 percent).

Bank alteration monitoring is typically conducted within two weeks of livestock having been moved from a Unit, which means regular monitoring for bank alteration occurs at the end of a Unit’s grazing, which could take place several weeks or months after the completion of steelhead spawning and incubation. This incidental take limit requires that real-time, early season bank alteration levels be monitored where grazing overlaps the steelhead spawning and incubation period to ensure exceedances do not occur. Therefore, bank alteration monitoring should occur no later than the July 15th conclusion of steelhead redd incubation. This monitoring is in addition to bank alteration monitoring typically conducted within two weeks of livestock being removed from a Unit.

2.9.2. Effect of the Take

In the biological opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to SRB steelhead.

2.9.3. Reasonable and Prudent Measures

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

NMFS believes that full application of conservation measures included as part of the proposed action, together with use of the RPMs and terms and conditions described below, are necessary and appropriate to minimize the impact of incidental take of listed species due to completion of the proposed action.

The SCNF shall:

- Minimize the potential for incidental take resulting from trampling of redds due to livestock grazing on the Allotment.

- Ensure completion of a monitoring and reporting program to confirm that the terms and conditions in this ITS are effective in avoiding and minimizing incidental take from permitted activities and that the extent of take was not exceeded.

2.9.4. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the Federal action agency must comply (or must ensure that any applicant complies) with the following terms and conditions. The SCNF or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement RPM 1:

   a. Ensure the extent of incidental take is not exceeded by ensuring streambank alteration levels, where SRB steelhead redd trampling could occur (i.e., Lower Silver Creek and West Fork Units), does not exceed the following levels at any time during the identified Snake River Basin steelhead incubation period for the action area (the 3rd week in March through July 8):

      i. 10% in Units where streambank stability conditions are less than 70%;

      ii. 15% in Units where bank stability conditions are 70% to 89%;

      iii. 20% in Units where the bank stability RMO is being met (i.e., ≥90%).

   b. Appropriately trained SCNF staff will monitor streambank alteration levels, using the same protocols identified in the proposed action, at the Lower Silver Creek and West Fork Unit DMAs. The monitoring shall occur within three weeks of moving cattle off these Units.

   c. To further reduce steelhead redd trampling potential on the Allotment within Lower Silver Creek and West Fork Units, the SCNF shall implement one of the following:

i. Immediately trigger the proposed adaptive management process (Appendix A) if streambank alteration at the end of the SRB steelhead incubation period (July 15) in the Lower Silver Creek and West Fork Units is: (1) >5% when bank stability is less than 70%; (2) >10% when bank stability is 70% to 89%; or (3) >15% when bank stability RMO is being met (i.e., ≥90%).

ii. Once triggered, the adaptive management strategy shall be used to further reduce the potential for cattle/steelhead redd interactions, including but not limited to adjusting in-season move-triggers, season of use, cattle numbers, and/or implementation of additional minimization/avoidance measures.

iii. Or, do not turn livestock out on the Lower Silver Creek or West Fork Units before July 8 to better avoid the steelhead incubation period.

d. Riding shall occur (three or more days per week) to encourage livestock distribution away from potential Snake River Basin steelhead spawning habitats, whenever cattle are grazing the Lower Silver Creek and West Fork Units during the steelhead incubation period (June to July 15).

e. The Allotment permittee or their employees shall receive training to appropriately implement the move triggers identified in the proposed action.

f. Annual meetings shall be conducted with the permittee to discuss specific actions necessary to protect spawning areas in stream reaches with the potential for cattle interaction with SRB steelhead spawning fish and/or redds.

g. The SCNF and their permittees shall ensure that all water developments that reduce cattle use adjacent to streams with ESA-listed fish species are properly maintained and functioning as intended.

2. To implement RPM #2 (monitoring and reporting), the SCNF shall ensure that:

a. Each Unit's DMA or key area is annually monitored to determine compliance with all identified annual use indicators in the proposed action. The report shall also identify any modifications to move-triggers or annual indicators that result from implementing the adaptive management strategy.

b. An end-of-year report is available to NMFS by March 1 of each year. The following shall be included in the report:

i. Overview of proposed action and actual management (livestock numbers, on-off dates for each Unit, etc.).

ii. Date and location of any specific SCNF implementation monitoring data collected, including monitoring required under term and condition 1 above.

iii. Results from all implementation and effectiveness monitoring identified as part of the proposed action and this Opinion, including required annual use indicator monitoring (e.g., stubble height, riparian shrub utilization, and streambank alteration), photo point monitoring, seral condition, streambank stability, water temperature, sediment, and GGW.

iv. Discussion of any unauthorized use and/or any maintenance issues related to fences or water developments as it pertains to Units with ESA-listed fish species or designated critical habitat.

v. Brief review of Allotment management and compliance successes and failures as it pertains to Units with ESA-listed fish species or designated critical habitat.

vi. Any relevant information that becomes available regarding SRB steelhead or Snake River spring/summer Chinook salmon habitat trends and/or spawning locations that would modify the assumptions made in this Opinion or result in effects not considered.

vii. A clear description of compliance with the terms and conditions and any exceedances of the extent of take contained in this ITS.

viii. Any management recommendations for subsequent years.

a. The SCNF shall submit post-project report to:

nmfswcr.srbo@noaa.gov

Or:

National Marine Fisheries Service
Attention: WCRO-2021-03078
800 East Park Boulevard
Plaza IV, Suite 220
Boise, Idaho 83712-7743

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 action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

The following recommendation is a discretionary measure that NMFS believes is consistent with this obligation and therefore should be carried out by the SCNF:

- To mitigate the effects of climate change on ESA-listed salmonids, follow recommendations by the Independent Scientific Advisory Board (2007) to plan now for future climate conditions by implementing protective tributary habitat measures. Implement measures to protect or restore riparian buffers, wetlands, and floodplains; remove stream barriers; and ensure late summer and fall tributary stream flows.

- Continue to work with the permittees to adjust the timing and/or rotation of Allotment Units to better protect accessible stream reaches during periods of steelhead and/or Chinook salmon spawning/incubation periods. Where feasible, give preference to grazing Units with inaccessible stream reaches (i.e., fenced, or less accessible because of steep topography or dense riparian vegetation) during these critical timeframes.

- Water quantity is a limiting factor for anadromous fish in the Upper Salmon River drainage. Both the overall production and productivity of ESA-listed fish and their habitat are affected by the number and length of streams, volume and quality of flow among stream reaches, and volume of the underlying aquifer. Changes in the consumptive use of water can affect ESA-listed salmonids and their habitat in downstream reaches. The SCNF should continue to utilize their authorities to conserve and recover aquatic habitats throughout the Upper Salmon River drainage to support species recovery.

Please notify NMFS if the SCNF, or another entity, carries out these recommendations so that we will be kept informed of actions that minimize or avoid adverse effects and those that benefit listed species or their designated critical habitats.

2.11. Reinitiation of Consultation

This concludes formal consultation for the Camas Creek Grazing Allotment. Under 50 CFR 402.16(a): “Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) if the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.”

2.12. "Not Likely to Adversely Affect" Determinations

2.12.1. Effects on Snake River Spring/summer Chinook

Livestock grazing has the potential to affect SR spring/summer Chinook salmon by disturbing adults and rearing juveniles, and also by trampling incubating redds as cows wade through or cross instream habitats.

Redd trampling by cows on this Allotment is highly unlikely to occur. The proposed action is structured so livestock will not be authorized to graze areas where Chinook salmon redds could be present. Unit rotations, fences, weekly riding requirements, continued application of riparian use indicators, steep rugged topography, proposed grazing timing and rotations, regular redd surveys and associated redd fencing, and trailing restrictions along Camas and West Fork Camas Creeks effectively eliminate any reasonable expectation that cows will be able to access streams with redds. Further, the proposed action includes measures to identify and correct problems. For example, the SCNF committed to perform regular improvement inspections and identify livestock locations. The action requires check-ins between SCNF staff and permittee or riders. This allows for consistent and effective communication and will help rapidly identify and implement effective fixes quickly.

The Panther Creek ford, used during trailing, is the only location where livestock could potentially trample Chinook salmon redds. When trailing livestock from the Allotment in accordance with the trailing permit the permittee would be authorized to move the cattle along a designated trailing route only. The route avoids potential Chinook salmon spawning areas everywhere but at the Panther Creek ford, near McGowan basin. Although no spawning has yet occurred at this ford, redds have been observed in upstream and downstream reaches. It has been determined by the SCNF that there is no spawning habitat at the ford crossing, or immediately near it, because of higher stream gradient and the lack of spawning substrate. Therefore, spawning at this site is not likely to occur in the ford. Further, in the unlikely event that substrate conditions change and the ford starts to support Chinook spawning, the SCNF is expected to utilize their adaptive management strategy (involving SCNF fish biologists and NMFS staff) to avoid trampling at the site. Thus, we concur with the SCFS that redd trampling from grazing on the Allotment is discountable.

Juvenile Chinook are likely to be present in most streams during the grazing season. For adult and juvenile Chinook, disturbance can lead to behavioral changes that can result in indirect effects through alteration in feeding success, increased exposure to predators, or displacement into less suitable habitat. Although these effects can result in reduced growth, injury, or death, we expect the juveniles affected by this action to be able to access nearby cover and avoid injury or death. Within the action area bank stability is high, indicating that sufficient escape cover to protect fish in the short term is likely available from overhanging banks. NMFS expects behavioral modifications will be infrequent and minor because habitat conditions in the action area should provide suitable escape cover. The SCNF and permittees will employ the following measures to reduce the amount of time cows spend in riparian areas: maintaining off-stream water sources; placing salt at least a quarter mile from streams; weekly herding of cows out of riparian areas; using designated crossings in most cases to move livestock across streams when changing pastures; maintaining fencing; and adhering to riparian utilization standards. The natural inaccessibility of many of action area streams, due to topography and dense riparian vegetation or beaver dams, further limits the potential for these effects to occur. For these reasons fish disturbances to adult and juvenile Chinook related to livestock grazing on the Allotment will be infrequent and minor, and thus is insignificant.

2.12.2. Effects on Designated Critical Habitat for Snake River Basin Steelhead and Snake River Spring/summer Chinook

The SCNF determined that the proposed action was not likely to adversely affect (NLAA) Snake River spring/summer Chinook salmon designated critical habitat within the action area. The designations of critical habitat for species use the term primary constituent elements (PCE) or essential features. The new critical habitat regulations (81 FR 7414) replace this term with Physical or Biological Feature (PBF). The shift in terminology does not change the approach used in conducting our analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this section, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

In evaluating the condition of designated critical habitat, NMFS examines the condition and trends of PBFs which 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 11). Potential effects to designated critical habitat and PBFs will be discussed in more detail below.

Table 11: Types of sites, essential physical and biological features (PBFs), and the species life stage each PBF supports.

Site	Essential Physical and Biological Features	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 and floodplain connectivity to form and maintain physical habitat conditions	Juvenile growth and mobility
	Water quality and forage[b]	Juvenile development
	Natural cover[c]	Juvenile mobility and survival
Freshwater migration	Free of artificial obstructions, water quality and quantity, and natural cover[c]	Juvenile and adult mobility and survival
Snake River spring/summer Chinook salmon		
Spawning and juvenile rearing	Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only), water temperature and access (sockeye only)	Juvenile and adult
Migration	Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food[d], riparian vegetation, space, safe passage	Juvenile and adult

[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 action and have therefore not been described in this opinion.
[b] Forage includes aquatic invertebrate and fish species that support growth and maturation.
[c] Natural cover includes shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
[d] Food applies to juvenile migration only.

PBFs: Freshwater Spawning, Rearing, and Migration Sites.

Water Quality. Habitat impacts associated with this Allotment are likely to include a few areas of denuded streambank on each Unit up to a few feet wide where cattle access streams to drink or cross. Early in the season, cattle do not typically loiter in riparian areas and they are expected to access streams to drink or cross in the same areas to avoid breaking new trail. Denuded areas associated with watering and crossing sites are likely to result in a slight increase in turbidity for a short distance downstream during rainstorms or runoff events. However, given background levels of turbidity during runoff events, it would be very difficult to distinguish between turbidity resulting from these minor grazing impacts and background turbidity. Cattle grazing is likely to lead to a slight increase in nutrients; however, impacts will be localized and immeasurable as a result of proposed measures designed to limit cattle use in riparian areas and the wide distribution of cattle across the Allotment over each year. In addition, riparian vegetation will function to trap and utilize nutrients deposited in riparian areas preventing the majority of waste from entering the water column.

Shade provided by vegetation can be important in keeping stream temperatures cool for salmonids (Zoellick 2004). Li et al. (1994) and Zoellick (2004) found that trout abundance decreased as solar input and water temperature increased. Water temperature is primarily affected by stream shade and channel geometry. Livestock grazing can directly increase water temperature if riparian vegetation removal results in increased solar exposure. Indirect effects could occur if livestock remove significant quantities of vegetation, either through foraging or trampling. Reduced riparian vegetation can result in increased streambank instability, which in turn, leads to over-widened streams. Over-widened streams, or high W:D, expose a greater surface area of shallower water to the sun. This can further increase water temperatures.

Within the Allotment, riparian conditions have improved since the 2014 BA, and W:D are within the natural range of variability. The BA states that observed water temperature regimes within the Camas Creek Allotment have generally fallen within PACFISH water temperature criteria, but individual streams and stream reaches have periodically displayed periods of elevated temperatures beyond optimum ranges for both spawning and rearing as described earlier in Section 2.4.1. Temperature data at the sites is scheduled to be collected at least every 5 years. These data suggest recent livestock grazing within the Allotment has not resulted in detectable effects to water temperatures within the action area.

The proposed action includes measures, including salting and use of riders to keep livestock away from critical stream reaches, which should result in livestock having even less potential to impact stream temperatures than has occurred in the past. Proposed annual use standards serve to reduce potential livestock impact on water temperatures by minimizing riparian vegetation use and livestock impact to streambanks to insignificant levels within the Allotment. Further, successful use of the described adaptive management program is expected to prevent site-specific impacts or a onetime annual use standard from leading to long-term habitat degradation. For these reasons, the proposed action is expected to have only insignificant effects on water quality in the action area.

Forage. More than half of some fish's food originates from terrestrial sources (Baxter et. al. 2005; Saunders and Fausch 2007). Their other food source is aquatic with many prey species feeding on terrestrial leaf litter. Aquatic invertebrates also depend heavily on terrestrial vegetation inputs. Therefore, riparian vegetation is very important to fish growth and survival in natal streams. Saunders and Fausch (2007) reported grazing management can influence terrestrial invertebrate inputs and demonstrated that short duration high-intensity grazing management resulted in large growth and abundance increases of fish when compared to season-long grazing management. Saunders and Fausch (2009) observed no difference in invertebrate biomass entering streams between sites managed for rotation grazing and ungrazed sites. The proposed action utilizes a rotational grazing scheme with moderate intensities over short durations. As a result, the action is expected to have effects consistent with the cited literature and thus impacts to this PBF will be insignificant.

Substrate. Available data from grazed areas within the action area indicates sediment levels in gravels are generally meeting SCNF standards for sedimentary geology within the Allotment (mean percent fines less than a quarter inch at depth). Because the proposed action is similar to the grazing that has occurred during the recent past it is reasonable to anticipate similar effects in the future.

Within the action area, stream sediment levels have been monitored at long term sites on mainstem West Fork Camas Creek, Camas Creek, Silver Creek, and Castle Creek. Functionality criteria for instream sediment reflect goal levels identified in the Salmon National Forest Plan, as modified by geologic setting. Most recent surveys (sediment - mean percent fines less than a quarter inch at depth) include West Fork Camas Creek 1A (2018) 21.9 percent, Camas Creek 1A (2018) 27.1 percent, Camas Creek 2A (2019) 23.4 percent, Camas Creek 3A (2019) 29.7 percent, Castle Creek 1A (2018) 19.7 percent, Silver Creek 1A (2019) 33.4 percent, and Silver Creek 2A (2018) 42.5 percent.

Review of the data associated with the resource objectives that are the most affected by livestock grazing (greenline successional status, woody species regeneration, and bank stability) taken at DMAs within Silver Creek show these indicators are at the RMO or higher except at M230 (Upper Silver Creek Unit/Silver Creek) which has a GES of 59 which indicate that the higher sediment levels are not attributed to livestock grazing because the area has not been grazed since 2012. The annual use indicator at this site is a 6-inch stubble height until the GES objective is met. The GES rating and sediment levels can be attributed to the Camas Creek area experiencing a 10 to 25-year flood in the spring of 2017 due to heavy snowpack and subsequent rapid melting and runoff event (USFS 2021). This heavy runoff resulted in changes to the stream channel including a number of beaver dams being washed out and changes in erosional and depositional bar locations in Silver and Camas Creeks.

Cattle will cross, water, and graze along some stream reaches in the Allotment and there will undoubtedly be minor instances of sediment introduction at crossings, watering sites, or where foraging activities result in low levels of streambank alteration. These introductions are likely to cause minor and temporary increases in substrate fine sediment in low velocity areas immediately downstream. As the available monitoring data suggest, these increases are not expected to be measurable. In addition, the use of riders, mineral deployment, and the described annual use indicators are expected to prevent measurable degradation of streambank conditions, which would otherwise lead to elevated sediment levels. These measures should ensure that the existing functioning appropriate sediment conditions within grazed areas of the Allotment are retained. NMFS also anticipates a long-term reduction in sedimentation as riparian conditions and streambank stability continue improving over time. Any short-term effects would be insignificant.

Natural Cover. Salmonids appear to prefer spawning in close proximity of overhead cover (Bjornn and Reiser 1991) and overhead cover protects juvenile salmonids from predation. Cover can also influence livestock access to streams, reducing trampling where cover is high or riparian vegetation is thick (Gregory and Gamett 2009). There will be a slight, short-term (one to six months) reduction in overhead vegetative cover at each access point and in individual riparian areas receiving actual grazing use. However, these effects are expected to be very localized, and not at a scale that would influence cover on a stream reach scale. Also, considering the prescribed riparian vegetation utilization standards, grazed riparian vegetation is expected to grow back prior to the start of the following grazing season. Available literature indicates the proposed utilization levels will allow maintenance of vegetation where currently meeting RMOs. Should riparian areas develop that are not meeting RMOs, the SCNF proposes to use adaptive management to prescribe more restrictive utilization standards, which should result in improvement of riparian conditions at near natural rates in these areas. Because riparian conditions have shown demonstrable improvements or maintenance of appropriately functioning conditions in the action area under past grazing, it is reasonable to assume these patterns will continue and the action will have only insignificant effects on cover.

No information currently exists documenting the amount or locations of undercut banks available to fish as cover in the action area. However, current bank stability ratings are meeting RMOs in all areas accessible to livestock use. This suggests that recent grazing activities have not reduced the available quantity of undercut banks providing cover for ESA-listed fish in the action area. NMFS anticipates this condition to persist for the term of the proposed action and any reduction of undercut banks that does occur would be minor and insignificant at the stream reach or watershed scales.

Riparian Vegetation. Similar to those PBFs described above, riparian vegetation impacts from the proposed livestock grazing are expected to be insignificant. Although cattle will consume and trample some riparian vegetation, the proposed conservation measures and annual utilization standards should greatly limit potential disturbance. Cattle use of riparian vegetation will be limited to 50 percent browse on multi-stemmed and single-stemmed species when the RMO for woody species is being met. A more restrictive 30 percent browse on multi-stemmed and single-stemmed species will be applied to Units when the RMO is not being met. Almost all DMAs are currently meeting RMOs for riparian vegetation and will utilize the higher utilization standards. This level of use has been consistently demonstrated to allowing for a stable trend where currently at PNC, or a trend toward late seral status where not at PNC.

The SCNF has incorporated several conservation measures (e.g., fencing, off-stream water sources and salt placement, established pasture rotations, herding, and forage utilization standards and monitoring) into grazing management on the Allotment in order to limit the impacts of livestock on designated critical habitat. Based on available scientific literature, NMFS expects that the proposed 20 percent maximum streambank alteration standard and 4-inch minimum stubble height will maintain stream habitat conditions that are currently functioning appropriately.

The SCNF's other conservation measures are also expected to help maintain or achieve late seral status or PNC. Turn-out in the spring is delayed by two weeks every other year to avoid grazing plants at the same time every year. For example, when a Unit is grazed first, browse on willows will be less (Hall and Bryant 1995; Kovalchik and Elmore 1991), and when the Unit is deferred the following season, upland and riparian herbaceous plants will be allowed to achieve maximum growth before grazing. Waiting for appropriate range conditions to turn livestock out (range readiness) will result in less potential impacts to soils and better distribution of livestock. For example, soil moistures will have decreased when range conditions are adequate resulting in less soil disturbance. At the same time, herbaceous plants in the uplands should still be fairly palatable, resulting in livestock spending less time in riparian areas. Salting at least one quarter mile away from creeks and riding for improved distribution of livestock will also help minimize cattle presence and potential impacts along streams and in riparian areas. Salt placed away from creeks will tend to encourage cattle to utilize other areas of the Allotment besides riparian areas. Riding would also serve the same purpose. These measures are expected to reduce negative impacts on riparian vegetation to insignificant levels while continuing to improve their seral status.

Information obtained from annual indicator monitoring will provide data and information to determine whether the current season's livestock grazing is meeting the intended criteria for livestock use in riparian areas. These data will provide information needed to refine and make annual changes to livestock grazing management practices necessary to continue to meet RMOs (through adaptive management) should they become degraded.

The impact of grazing on riparian habitat within the action area has the potential to accelerate stream temperature increases caused by climate change. Overgrazing of riparian vegetation and stream widening due to bank alteration from livestock could result in less shading and shallow stream reaches, therefore causing an increase in water temperature. Additionally, the 15-year timeframe for implementing the proposed action will occur while climate change-related effects are expected to become more evident within the range of the SRB steelhead DPS and SR Chinook Evolutionary Significant Unit. However, management techniques for the proposed action will either maintain or improve riparian habitat within the action area. Therefore, the proposed action is not expected to significantly contribute to the broader adverse effects of climate change to steelhead and Chinook.

NMFS anticipates that only insignificant effects to critical habitat are likely to occur under the proposed action. Primary reasons for this conclusion include: (1) habitat and riparian conditions are functioning at or near potential in almost all SCNF-managed reaches, which have been under less restrictive grazing practices in the recent past; (2) stream channels most sensitive to livestock grazing are generally excluded from grazing or occur in Units where late season grazing is not proposed; (3) the SCNF has demonstrated their ability to effectively apply the proposed monitoring and adaptive management strategy to identify potential livestock overutilization and prescribe effective management responses; and (4) there is limited livestock access to sensitive stream reaches designated as critical habitat due to topography and existing fences. Limiting the action's impacts to the minor levels described will maintain habitat conditions where they currently meet objectives and allow continued improvement in the limited sites that are below objectives. As a result of successfully implementing the proposed action, including conservation measures and monitoring, as described in the BA and this opinion and based on the best available information, NMFS concurs with the SCNF's findings that the subject action is NLAA designated critical habitats for SRB steelhead and SR spring/summer Chinook salmon.

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 SCNF and their permittees. A copy of this opinion was provided to the SCNF. The format and naming adheres to conventional standards for style. This consultation will be posted at the NOAA Library Institutional Repository (https://repository.library.noaa.gov/welcome).

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 the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR part 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 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 reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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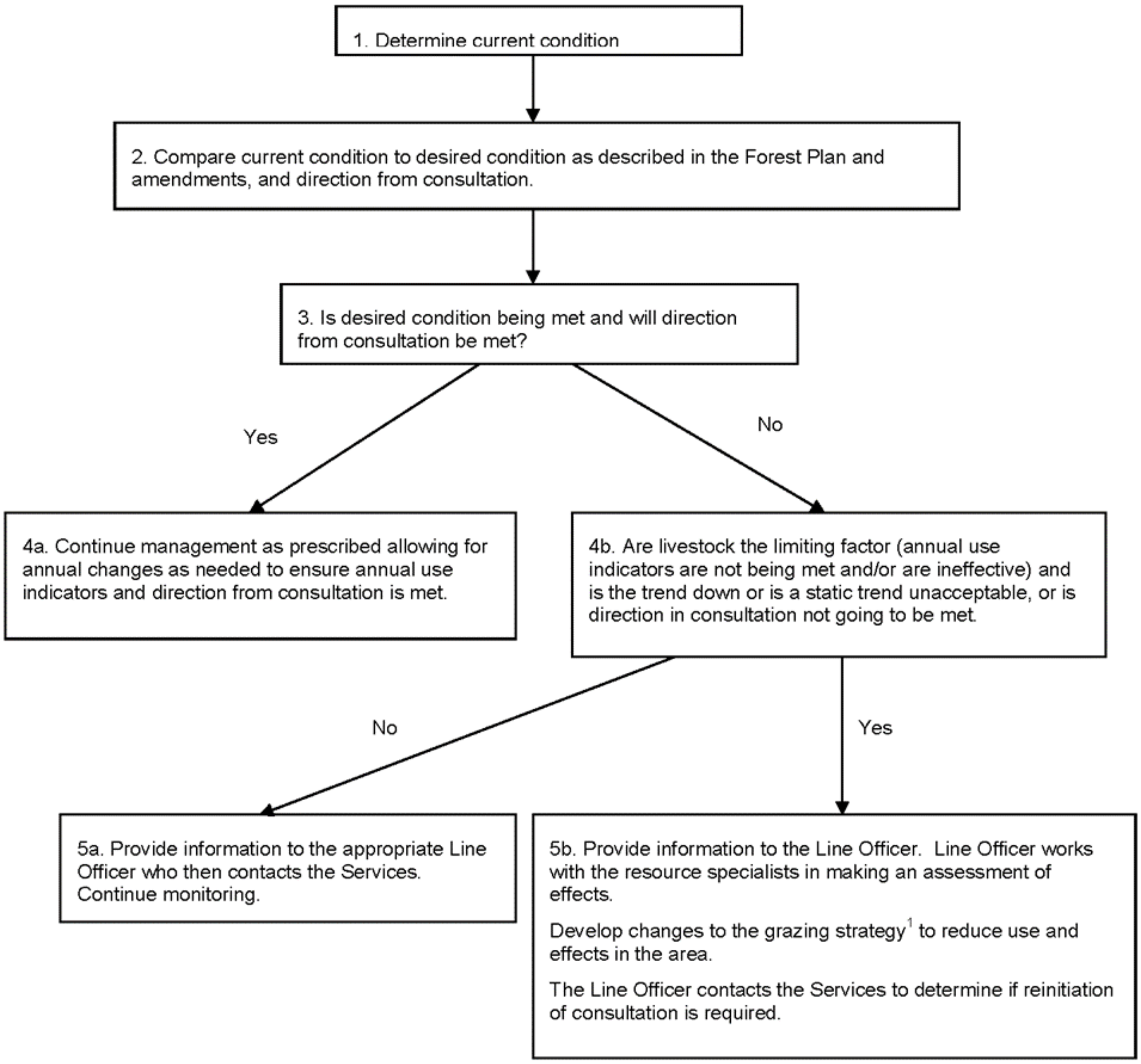
5. APPENDIX

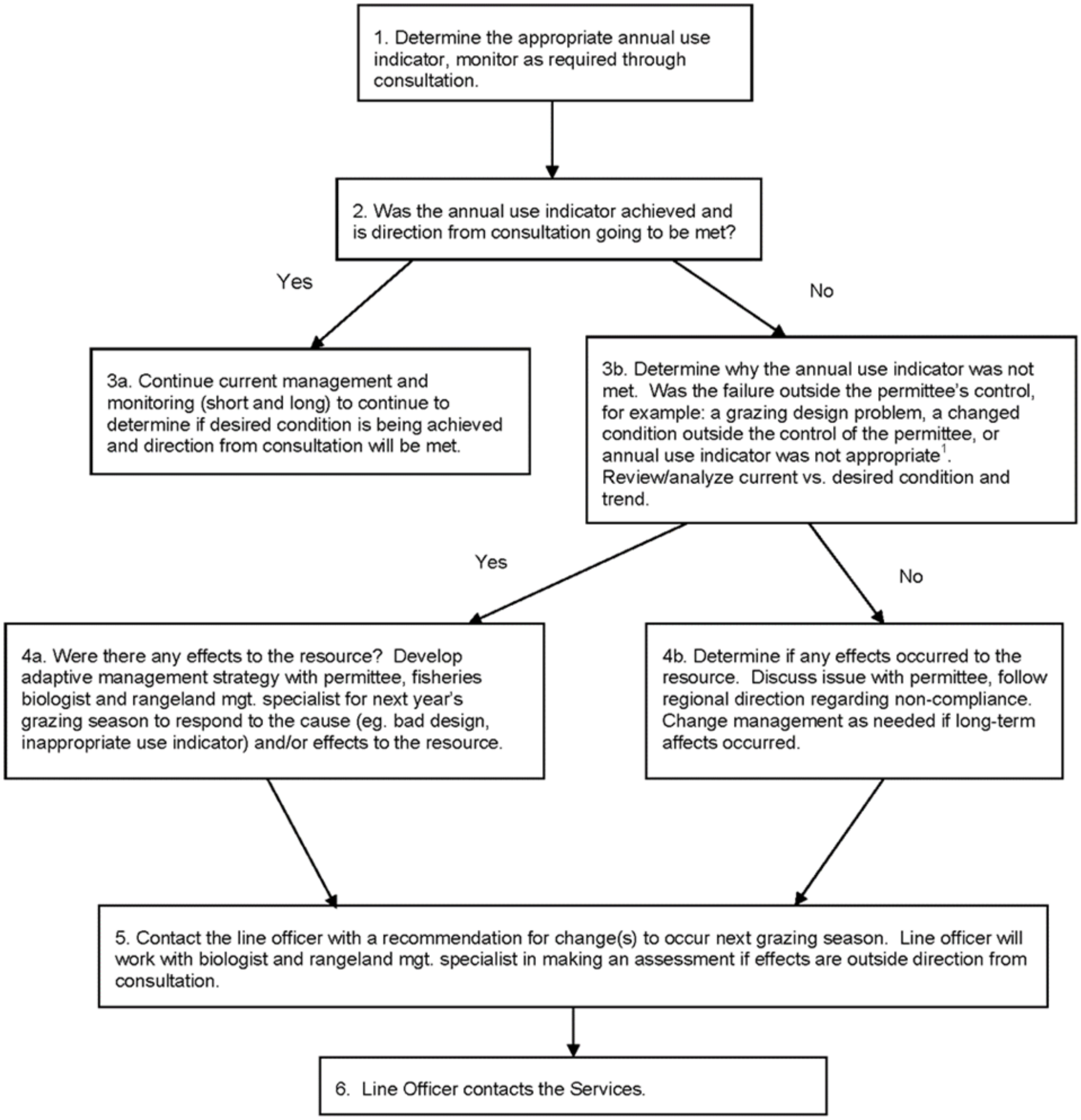
Salmon-Challis National Forest
Adaptive Management Strategy for Grazing Allotments

Diagram 1.0 – Implementation of Long-Term Adaptive Management Strategy for Allotments Requiring Consultation.



[1]Management actions will initially reduce use in the area. It is expected this may occur in any number of ways including but not limited to changing the season of use, reducing numbers, changing amount of use on annual indicator, changing herding practices, changing salting practices and/or reconstructing/constructing range improvements. If use can't be reduced and livestock continue to be the limiting factor total removal of livestock from the area may be necessary. Effectiveness of changed management will be monitored through adjusted annual use indicators and effectiveness monitoring.

Diagram 2.0 - Implementation of Annual Adaptive Management Strategy for Allotments Requiring Consultation.



[1]An inappropriate annual use indicator is an indicator that does not most accurately identify the weak link or first attribute that would indicate excessive livestock impacts. In this situation, changing to a more appropriate indicator will help achieve or maintain desired conditions.