UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232-1274

Refer to NMFS No: WCRO-2022-00867

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July 22, 2022

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

Re: Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Middle Fork Salmon River Recreational Floating Activities, Upper Middle Fork Salmon River, 17060205; Lower Middle Fork Salmon River, 17060206; Middle Salmon-Chamberlain, 17060207, Custer and Lemhi Counties, Idaho

Dear Mr. Mark:

Thank you for your email dated March 30, 2022, 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 Middle Fork Salmon River Recreational Floating Activities. 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.

On July 5, 2022, the United States District Court for the Northern District of California issued an order vacating the 2019 regulations adopting changes to 50 CFR part 402 (84 FR 44976, August 27, 2019). This consultation was initiated when the 2019 regulations were still in effect. As reflected in this document, we are now applying the section 7 regulations that governed prior to adoption of the 2019 regulations. For purposes of this consultation, we considered whether the substantive analysis and its conclusions regarding the effects of the proposed actions articulated in the biological opinion and incidental take statement would be any different under the 2019 regulations. We have determined that our analysis and conclusions would not be any different.

In this biological opinion (opinion), NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of Snake River spring/summer Chinook salmon. NMFS also concurs with the Salmon-Challis National Forest (SCNF) determination that the proposed action may affect, but is not likely to adversely affect Snake River sockeye salmon, Snake River Basin

steelhead, and designated critical habitat for Snake River spring/summer Chinook salmon, Snake River sockeye salmon, and Snake River Basin steelhead. Rationale for our conclusions is provided 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 NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth terms and conditions, including reporting requirements, that the SCNF including any permittee who performs any portion of the action, must comply with in order to be exempt from the ESA take prohibition.

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 about this consultation.

Sincerely,

Michael P. Tehan
Assistant Regional Administrator

Enclosure

cc: K. Krieger – SCNF
N. Schade – SCNF
E. Traher– USFWS
C. Colter – SBT
J. Richards - IDFG

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

Middle Fork Salmon River Recreational Floating Activities

NMFS Consultation Number: WCRO-2022-00867

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 spring/summer Chinook salmon (*Oncorhynchus tshawytscha)*	Threatened	Yes	No	No	N/A
Snake River Basin steelhead (*O. mykiss*)	Threatened	No	N/A	No	N/A
Snake River sockeye salmon (*O. nerka*)	Endangered	No	N/A	No	N/A

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
West Coast Region
National Marine Fisheries Service

Date: *July 22, 2022*

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AIS	Aquatic Invasive Species
BA	Biological Assessment
BMP	Best Management Practice
CFR	Code of Federal Regulations
CR	Conservation Recommendation
DPS	Distinct Population Segment
DQA	Data Quality Act
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FC-RONR	Frank Church – River Of No Return
FR	Forest Road
FS	Forest Service
FWS	Fish and Wildlife Service
HUC	Hydrologic Unit Code
ICTRT	Interior Columbia Technical Recovery Team
IISF	Idaho Invasive Species Fund
ISAB	Independent Scientific Advisory Board
ITS	Incidental Take Statement
MFSR	Middle Fork Salmon River
MPG	Major Population Group
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
Opinion	Biological Opinion
ORW	Outstanding Resource Water
PBF	Physical or Biological Feature
PCE	Primary Constituent Element
RM	River Mile
RPA	Reasonable and Prudent Alternative
RPM	Reasonable and Prudent Measure
SCNF	Salmon Challis National Forest
SR	Snake River
SNRA	Sawtooth National Recreation Area
U.S.C.	U.S. Code
VSP	Viable Salmonid Population

1. INTRODUCTION

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

1.1. Background

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

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 2 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 March, 30, 2022, NMFS received an email from the Salmon-Challis National Forest (SCNF) requesting ESA consultation on the effects of authorizing proposed recreational floating activities on the Middle Fork Salmon River (MFSR). The biological assessment (BA) (SCNF 2022) and request letter accompanying that email described proposed activities, the environmental baseline, and the potential effects of those activities on Snake River (SR) Basin steelhead, SR spring/summer Chinook salmon, SR sockeye salmon, and their designated critical habitats. In the BA, the SCNF determined that the proposed action "may affect," and is "likely to adversely affect" SR spring/summer Chinook. The SCNF also determined that the action "may affect," but is "not likely to adversely affect" SR Basin steelhead, SR sockeye salmon, and designated critical habitat for SR Basin steelhead, SR sockeye salmon, and SR spring/summer Chinook. We previously consulted on this action in 2010, issuing an opinion on September 28, 2010 (NMFS tracking number 2010/02467). The SCNF has modified the proposal since that earlier consultation. Those modifications are described in section 1.3.2 below.

The draft BA for the MFSR Recreational Floating Activities was submitted to the Level 1 Team for review on March 1, 2022. NMFS provided comments to the SCNF on the draft BA on March 15, 2022, and discussed comments on the BA at the March 23, 2022, Level 1 meeting. The SCNF made some revisions to the draft BA and provided sections of the BA on March 23, March 24, and March 28 for review. NMFS reviewed these edits and provided comments on March 24, March 25, and March 28. The SCNF indicated that they would address all NMFS comments and submit a final BA. 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 BA and request for consultation was received by NMFS on March 30, 2022. On April 15, 2022, NMFS requested a copy of the required monitoring report from the previous 2021 management season (NMFS Biological Opinion 2010/02467) in order to consider

the initiation package complete. The SCNF provided the report on April 18, 2022, and consultation was initiated at that time.

NMFS shared the draft proposed action and proposed conservation measures with the SCNF on June 30, 2022. The SCNF suggested revisions to the draft opinion on July 15, 2022.

The SCNF's proposed authorization of MFSR recreational floating activities 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 (CR) were sent to the Shoshone-Bannock Tribes on July 5, 2022, with a request for comments. NMFS did not receive any response.

On July 5, 2022, the United States District Court for the Northern District of California issued an order vacating the 2019 regulations adopting changes to 50 CFR part 402 (84 FR 44976, August 27, 2019). This consultation was initiated when the 2019 regulations were still in effect. As reflected in this document, we are now applying the section 7 regulations that governed prior to adoption of the 2019 regulations. For purposes of this consultation, we considered whether the substantive analysis and its conclusions regarding the effects of the proposed actions articulated in the biological opinion and incidental take statement would be any different under the 2019 regulations. We have determined that our analysis and conclusions would not be any different.

1.3. Proposed Federal Action

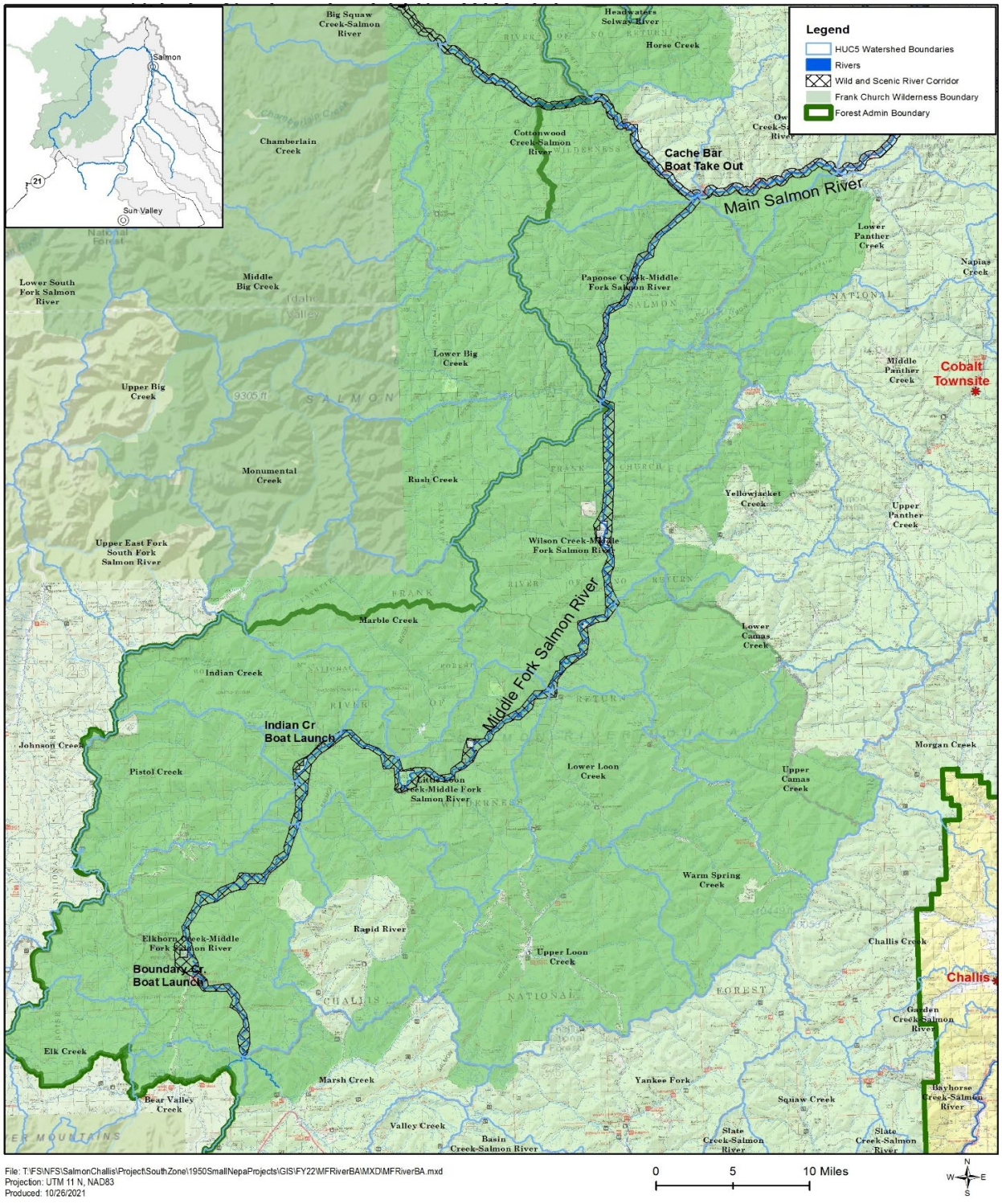
Under the ESA, "action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (see 50 CFR 402.02). "Interrelated actions" are those that are part of a larger action and depend on the larger action for their justification. "Interdependent actions" are those that have no independent utility apart from the action under consideration (50 CFR 402.02).

The proposed action is to reissue twenty-eight special use permits for commercial operators and for the issuance of non-commercial permits for floating the MFSR annually. Pre- and post-control season permits are issued on a first come-first serve basis. Control season permits (May 28 to September 3) (Table 2) are issued though a lottery. No more than seven groups, both commercial and non-commercial, may launch on any single day. Commercial group size may be up to 30 people; the average is 24 per group. Non-commercial group size may be up to 24 people; the average is nine per group.

Generally, four of the seven daily permits are allocated to non-commercial groups, which could total 396 non-commercial control season permits. Pre-control season groups often launch from Marsh Creek, which is accessible from Forest Road (FR) 40083, near Highway 21, when access to Boundary Creek is limited by snowpack. Marsh Creek can be floated to above Dagger Falls without a permit. Marsh Creek launches average 32 per year or 5 percent of total launches. Water levels are generally too low during control and post-control season to launch from Marsh Creek.

Commercial river-based recreation would be managed on the MFSR according to the Frank Church-River of No Return (FC-RONR) Wilderness Plan (USDA FS 2003). Commercial

floating on the MFSR is permitted from the Boundary Creek boat ramp to the take-out at Cache Bar, approximately 3.5 miles downstream of the confluence of the Middle Fork and main Salmon Rivers (Figure 1).



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Projection: UTM 11 N, NAD83
Produced: 10/26/2021

Figure 1. Middle Fork Salmon River Recreational Floating Activities Vicinity Map

Most launches occur at Boundary Creek, about one-half mile below Dagger Falls, where the permitted section of the MFSR begins. Later in the season, dependent upon water levels, launches also occur from the Indian Creek Guard Station. Deadhead trips (boats operated by a commercial guide with no paying passengers) can be authorized to launch from Boundary Creek to meet clients at Indian Creek. Under that circumstance, the trip between Boundary Creek and Indian Creek must be completed in one day. A small number of launches also occur from the Flying B (or Bernard Guard Station), Loon Creek, and Little Creek.

Two outfitters operate trips where they walk down Big Creek and meet boats on the MFSR. Activities within the Big Creek drainage are administered by the Payette National Forest[1]. Groups that float Big Creek must obtain permits from the Payette National Forest, in addition to the permit for the MFSR. Non-commercial floaters do not need permits on the main Salmon River from the confluence with the MFSR to Corn Creek. Each permit must launch on the date specified on the permit. No more than seven groups, both commercial and non-commercial, may launch on any single day.

Permits are also issued for administrative use for the Forest Service and Idaho Department of Fish and Game. These permits are in addition to the seven commercial and private permits issued daily (Tables 1 and 2). Forest Service river patrol personnel are on the MFSR on a weekly basis during the control season.

Table 1. Comparison of Total Annual Commercial, Private, and Administrative Launches (both control and non-control season permits).

Year	# Commercial Permits	# People (Commercial)	# Private Permits	# People (Private)	# Administrative Launches	# People (Admin)
2010	259	5,440	532	4,782	26	149
2011	242	5,232	429	3,837	26	127
2012	261	5,811	507	4,735	27	122
2013	274	6,219	635	5,141	47	214
2014	262	6,204	489	4,397	25	131
2015	271	6,670	544	4,614	31	152
2016	294	6,959	516	4,572	26	142
2017	272	6,707	461	4,005	21	157
2018	301	7,489	561	5,138	16	107
2019	303	5,345	504	4,610	18	151
2020	283	6,326	585	5,292	16	96
2021	307	8,096	483	4,592	16	112
12 Year Average	**277**	**6,375**	**521**	**4,643**	**25**	**138**

[1] Once on the MFSR, this portion of the permit is considered part of the proposed action, and is then administered by the SCNF.

Table 2. Comparison of Control and Non-Control Season Numbers[2].

Year	# Control Season Permits (05/28 - 09/03)[3]	# People (Control Season)	# Pre and Post Season Permits[4]	# People (Pre and Post Season)	Total # Permits	Total # People	Total # of Craft
2010	616	9,117	175	1,105	791	10,222	5,228
2011	517	8,094	154	975	671	9,069	4,252
2012	605	9,557	163	989	768	10,546	5,282
2013	744	10,395	165	965	909	11,360	5,845
2014	589	9,529	162	1,072	751	10,601	5,183
2015	592	9,815	224	1,472	816	11,287	5,642
2016	615	10,266	195	1,262	810	11,528	5,738
2017	540	9,473	193	1,239	733	10,712	5,014
2018	637	11,165	225	1,462	862	12,627	6,145
2019	603	8,653	204	1,302	807	9,955	5,686
2020	624	10,044	244	1,574	868	11,618	5,874
2021	597	11,432	193	1,254	790	12,686	6,113
12 Year Average	**607**	**9,795**	**191**	**1,223**	**798**	**11,018**	**5,500**

Float Boating Activities

Nearly all boats used are inflatable; rafts, sweep boats, catarafts, and inflatable kayaks. Rigid hull drift boats, kayaks, and canoes are also used. All the craft draw about six to eight inches of water. Grounding is common, especially in the 25 miles between Boundary Creek and Indian Creek when the river level is below two feet. No motors are allowed on the MFSR, so boats are propelled by one of three methods; rowing, paddling, or use of sweeps. In all methods, there is a strong motivation to keep the boat, paddles and sweeps from coming in contact with the river bottom. As in all whitewater boating, boat operators tend to select deeper runs with fewer obstructions. Boating accidents are not uncommon. Virtually all cargo is not hazardous, but there are some exceptions.

Portable toilets could be emptied, or propane containers could rupture. Other potentially hazardous items include soap, bleach, charcoal, lighter fluid, and white gas. However, these items are typically packed with redundant or triple containment. For example, the primary container would be within a dry box or in a leak-proof container within a dry box.

Typical activities authorized and engaged in by people floating the river include fishing, wading, and swimming. Stopping to hike along the river and visiting points of interest near the river is common. Camping would continue to be regulated according to the Wilderness Plan. All groups floating the MFSR must camp at assigned sites. Larger sites tend to be more heavily impacted, and a few may generate sediment into the river.

[2] The control season occurs during the most desirable flow levels for rafting or navigating the river (5/28 to 9/03). Pre and post control seasons are very challenging times to navigate the river and only expert navigators will run the risk of running the river due to flow levels being very high or too low.

[3] There is a total of 693 permits that can be issues during the controlled season (May 28 to September 3) limited to seven permits a day.

[4] Pre and Post Season Permits (outside of the control season) are still limited to seven permits per day and are available on a first come-first served basis.

While people are in camp, boats are moored in the river along the shore or pulled up on shore, typically in front of the camps. Trash and food waste are contained and carried off the river. Wash water is strained, and solids are carried as trash. Cooking is usually conducted with gas or propane stove, although charcoal or wood is sometimes used. Fires must be contained in a fire pan, and the ashes carried out as trash. Wash water, toothpaste water, and rinse waters are all dispersed above the high-water mark. Solid human waste is contained in portable toilets and transported off the river to a disposal station near the town of North Fork. The river is used to discard human urine.

Aquatic Invasive Species

Aquatic invasive nuisance species are non-native plant and animal species that threaten the diversity or abundance of native species, the ecological stability of infested waters, or commercial, agricultural, aqua cultural, or recreational activities dependent on such waters (IISC Tech. Committee 2007). The Idaho Invasive Species Council developed an Aquatic Nuisance Species Plan in 2007 (IISC Tech. Committee 2007). This plan outlines the roles of federal agencies, such as the Forest Service (FS), in the control and management of aquatic invasive nuisance species. The plan emphasizes that prevention of introduction of invasive aquatic species is more effective than eradication and restoration.

The Idaho State Legislature passed the Idaho Invasive Species Act of 2008, which made it illegal to transport or introduce an invasive species into or within the state of Idaho. The act established an Invasive Species Fund, which is to be used to support activities related to prevention, detection, control, and management of invasive species in Idaho. To that effect, all boats, motorized and non-motorized, over ten feet in length are to have a valid Idaho Invasive Species Fund sticker displayed to legally launch and operate in Idaho. The sticker sales provide funding for aquatic invasive species inspection and decontamination stations, public outreach and education, and waterbody monitoring.

All craft and equipment will be dry and clean at arrival to launch point. Clean means no vegetation, mud, or debris clinging to boats or equipment. Dry means no standing water in boats or equipment and no wet equipment that could provide substrate to invasive aquatic species. It will be the responsibility of the permit holder to ensure that all craft and equipment included in the permit comply with this requirement. Craft that are used exclusively on the MFSR are exempt from this requirement.

Aquatic invasive species (AIS) education will be added to the mandatory control season boater orientation. AIS information will also be included in the packets sent to permit holders.

1.3.1. Conservation Measures

The MFSR has been designated an Outstanding Resource Water (ORW) by the Idaho State Legislature. River-based recreation activities that could impact the status and quality of ORW were identified and best management practices (BMPs) were developed to prevent water quality degradation. Camping, cooking and clean up, trash disposal, fires, and human waste have the potential impacts of chemical and nutrient leaching from soaps and waste, litter, and possible

small fuel spills (IDEQ 2001). The BMPs included as standards in the Wilderness Plan for the purpose of maintaining good water quality are currently and will continue to be adhered too.

- Solid human waste, unburnable litter and refuse material must be packed out.
- Require the use of portable toilets, packing out and properly disposing of human waste. Human waste must be removed from the river corridor.
- Require firepans for all visitors in the corridor. Ashes and other fire residue must be packed out.
- Use of soap in rivers (below mean high water level) or in hot springs is prohibited.
- Cutting standing trees (live or dead) for firewood or other purposes is prohibited, except for fire control and administrative purposes.
- Exceeding trip duration or maximum party size limits without prior written approval is prohibited.
- Unless approved by permit and determined to be consistent with the Wilderness Act and necessary for administration of the wilderness, use of motorized equipment and mechanical transport is prohibited, except as allowed by law.

The Wilderness Plan outlines management standards and guidelines for river campsites:

- Campsites are unobtrusive and dispersed. Campsite activity, experiences, and campsite resource conditions do not exhibit a downward trend. Degraded campsite conditions will be addressed using the following sequence of efforts:
    - Educate visitors to change behavior or to encourage protection of certain resource attributes at a campsite.
    - Decrease use in the spring and fall to allow for natural green-up and recovery.
    - Restore and block certain areas of a campsite with native material barriers.
    - Designate kitchen areas, tent sites and social trails.
    - Provide appropriate structures when needed to protect the wilderness resource.
    - Close campsites (seasonally first, year-round as needed).
- No more than 45 percent of river campsites will be in Frissell Condition Class IV and no more than 7 percent will be in Condition Class V.
- Improve degraded campsites in Frissell Condition Classes IV and V (Appendix A). Focus management on campsite conditions and measurable adverse effects to resources.

The following measures will be implemented to protect Chinook Salmon redds:

- During Chinook salmon spawning season (August 15 – September 15), monitoring for redds will occur weekly.
- Locations of redds would be identified, mapped, and avoidance measures will be applied during the Chinook salmon spawning season:
    - In every possible situation, when able to achieve safely, routes that avoid floating over redds will be recommended and used including recommending floating the deepest part of the channel.

    - Areas near redds will be identified as "quiet" floating areas where boaters will be advised to limit rowing and paddling to the minimum necessary to safely navigate past the area.
    - These areas will also be recommended as no fishing zones.
- Campsites will be evaluated each year for spawning fish or incubating eggs that could potentially be impacted and will be closed as needed to protect redds and will not be opened until the next season.
- During the Chinook spawning season, the number of craft per party would be limited to 12.

For Invasive species the following will be adhered too:

- Idaho State Law requires that all craft over 10 feet in length have a valid Idaho Invasive Species Fund (IISF) sticker displayed. IISF stickers will not be available at launch sites but will be required to launch.
- Aquatic invasive species education will be added to the mandatory control season boater orientation. AIS information will also be included in any packets sent to permit holders.

1.3.2. Changes from Existing Management

The Forest will start reissuing cancelled permits during the Chinook salmon spawning season (August 15 – September 15).

1.3.3. Resource Objectives and Standards

Challis National Forest Plan Standards and Guidelines apply, including plans and amendments to the Forest Plan (i.e., the FC-RONR Wilderness Management plan and PACFISH).

1.3.4. Monitoring

Chinook salmon spawning commences in the main stem of the MFSR in early-August and goes through the end of September. If redds are located as built, they will be mapped and more effectively avoided. When redds are identified through monitoring, personnel will convey redd information to personnel at the Boundary and Indian Creek Guard Stations, who would then give the information to boaters. Maps and information will be posted at launch sites as well.

During the control season, camps with redds nearby would not be assigned when the use of that camp would potentially disturb the nearby redd. After the control season, camps are assigned below Indian Creek Guard Station. Between Boundary and Indian Creek, camps with potential redd conflicts would be closed.

Personnel would also be instructed to look for and collect Chinook carcasses for further analysis. A protocol for carcass collection has been developed. These additional monitoring efforts would greatly enhance the current amount of data in the area and would allow for refinement of management to avoid disturbance of spawning Chinook salmon.

In addition, the SCNF will commit to completing an annual monitoring report. The report will be submitted to the Services (i.e., NMFS and the US Fish and Wildlife Service [FWS]) before March 1 for the previous reporting time period. The SCNF will complete a project review every ten years. This ten-year review will coincide with the reissuance of individual commercial special use permits, but will also consider the ongoing practice of private permit issuance and administration. The SCNF review will evaluate the need to change the proposed action, examine any new literature on the effects of the authorized actions, and update the environmental baselines. The SCNF would notify the Services of any proposed changes to the permits or their administration, any updates to the environmental baseline, a summary of any new relevant literature or monitoring, and the SCNF's rationale regarding the need to reinitiate ESA consultation or 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 SR spring/summer Chinook. The SCNF also determined the proposed action is not likely to adversely affect SR Basin steelhead, SR sockeye salmon, and designated critical habitats for SR spring/summer Chinook salmon, SR Basin steelhead, and SR sockeye salmon. Our concurrence is documented in the "Not Likely to Adversely Affect" Determinations section (Section 2.13). Table 3 provides the ESA listing status for the species and designated critical habitats.

Table 3. Listing status, status of critical habitat designations and protective regulations, and relevant Federal Register decision notices for ESA-listed species considered in this opinion.

Species	Listing Status[1]	Critical Habitat[2]	Protective Regulations
Chinook salmon (*Oncorhynchus tshawytcha*)			
Snake River spring/summer-run	T 4/22/92; 57 FR 14653	12/28/93; 58 FR 68543	6/28/05; 70 FR 37160
Sockeye salmon *(O. nerka)*			
Snake River	E 11/20/91; 56 FR 58619	12/28/93; 58 FR 68543	ESA section 9 applies
Steelhead (*O. mykiss*)			
Snake River Basin	T 8/18/97; 62 FR 43937	9/02/05; 70 FR 52630	6/28/05; 70 FR 37160

Note: Listing status 'T' means listed as threatened under the ESA; 'E' means listed as endangered.
[1]The listing status for Snake River spring/summer Chinook salmon was corrected on 6/3/92 (57 FR 23458) and reaffirmed on 6/28/05 (70 FR 37160). The listing status for Snake River Basin steelhead was reaffirmed on 1/5/06 (71 FR 834). The listing status for Snake River sockeye salmon was reaffirmed on 6/28/05 (70 FR 37160). The listing status for all species was reaffirmed again on April 14, 2014 (79 FR 20802).
[2]Critical habitat for Snake River spring/summer Chinook salmon was revised on 10/25/99 (64 FR 57399).

2.1. Analytical Approach

This biological opinion includes a jeopardy analysis. This 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.

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 and critical habitat.
- 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 (RPA) to the proposed action.

2.2. Status of the Species

This section describes the present condition of the SR spring/summer Chinook salmon, evolutionarily significant units (ESUs). NMFS expresses the status of a salmonid ESU or distinct population segment (DPS) in terms of likelihood of persistence over 100 years (or risk of

extinction over 100 years). NMFS uses McElhany et al.'s (2000) description of a viable salmonid population (VSP) that defines "viable" as less than a 5 percent risk of extinction within 100 years and "highly viable" as less than a 1 percent risk of extinction within 100 years. A third category, "maintained," represents a less than 25 percent risk within 100 years (moderate risk of extinction). To be considered viable, an ESU should have multiple viable populations so that a single catastrophic event is less likely to cause the ESU to become extinct, and so that the ESU may function as a metapopulation that can sustain population-level extinction and recolonization processes (ICTRT 2007). The risk level of the ESU is built up from the aggregate risk levels of the individual populations and major population groups (MPGs) that make up the ESU/DPS.

Attributes associated with a VSP are: (1) abundance (number of adult spawners in natural production areas); (2) productivity (adult progeny per parent); (3) spatial structure; and (4) diversity. A VSP needs sufficient levels of these four population attributes in order to: safeguard the genetic diversity of the listed ESU; enhance its capacity to adapt to various environmental conditions; and allow it to become self-sustaining in the natural environment (ICTRT 2007). These viability attributes are influenced by survival, behavior, and experiences throughout the entire salmonid life cycle, characteristics that are influenced in turn by habitat and other environmental and anthropogenic conditions. The present risk faced by the ESU informs NMFS' determination of whether additional risk will appreciably reduce the likelihood that the ESU will survive or recover in the wild.

The following sections summarize the status and available information on SR spring/summer Chinook salmon based on the detailed information provided by the ESA Recovery Plan for Snake River Spring/Summer Chinook Salmon & Snake River Basin Steelhead (NMFS 2017), Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest (Ford 2022), and 2022 5-Year Review: Summary & Evaluation of Snake River Spring/Summer Chinook Salmon (NMFS 2022) These documents are incorporated by reference here and contributes to the best scientific and commercial data available. Because adverse effects to critical habitats are expected to be minor or unlikely to occur, this opinion does not discuss the status of critical habitats. See section 2.11 for critical habitat effects discussion.

This ESU occupies the Snake River basin, which drains portions of southeastern Washington, northeastern Oregon, and north or central Idaho. Large portions of historical habitat were blocked in 1901 by the construction of Swan Falls Dam, on the Snake River, and later by construction of the three-dam Hells Canyon Complex from 1955 to 1967. Dam construction also blocked or hindered fish access to historical habitat in the Clearwater River basin as a result of the construction of Lewiston Dam (removed in 1973 but believed to have caused the extirpation of native Chinook salmon in that subbasin). The loss of this historical habitat substantially reduced the spatial structure of this species. The production of SR spring/summer Chinook salmon was further affected by the development of the eight Federal dams and reservoirs in the mainstem lower Columbia Snake River migration corridor between the late 1930s and early 1970s (NMFS 2017).

Several factors led to NMFS' 1992 conclusion that SR spring/summer Chinook salmon were threatened: (1) abundance of naturally produced SR spring and summer Chinook runs had

dropped to a small fraction of historical levels; (2) short-term projections were for a continued downward trend in abundance; (3) hydroelectric development on the Snake and Columbia Rivers continued to disrupt Chinook runs through altered flow regimes and impacts on estuarine habitats; and (4) habitat degradation and reduced streamflows existed throughout the region, along with risks associated with the use of outside hatchery stocks in particular areas (Good et al. 2005). On May 26, 2016, in the agency's 5-year review for Pacific salmon and steelhead, NMFS concluded that the species should remain listed as threatened (81 FR 33468).

Life History. Snake River spring/summer Chinook salmon are characterized by their return times. Runs classified as spring Chinook salmon are counted at Bonneville Dam beginning in early March and ending the first week of June; summer runs are those Chinook salmon adults that pass Bonneville Dam from June through August. Returning adults will hold in deep mainstem and tributary pools until late summer, when they move up into tributary areas and spawn. In general, spring-run type Chinook salmon tend to spawn in higher-elevation reaches of major Snake River tributaries in mid- through late August, and summer-run Chinook salmon tend to spawn lower in Snake River tributaries in late August and September (although the spawning areas of the two runs may overlap).

Spring/summer Chinook spawn typically follow a "stream-type" life history characterized by rearing for a full year in the spawning habitat and migrating in early to mid-spring as age-1 smolts (Healey 1991). Eggs are deposited in late summer and early fall, incubate over the following winter, and hatch in late winter and early spring of the following year. Juveniles rear through the summer, and most overwinter and migrate to sea in the spring of their second year of life. Depending on the tributary and the specific habitat conditions, juveniles may migrate extensively from natal reaches into alternative summer-rearing or overwintering areas. Portions of some populations also exhibit "ocean-type" life history, migrating to the ocean during the spring of emergence (Connor et al. 2001; Copeland and Venditti 2009). Snake River spring/summer Chinook salmon return from the ocean to spawn primarily as 4- and 5-year-old fish, after 2 to 3 years in the ocean. A small fraction of the fish return as 3-year-old "jacks," heavily predominated by males (Good et al. 2005).

Spatial Structure and Diversity. The SR ESU includes all naturally spawning populations of spring/summer Chinook in the mainstem Snake River (below Hells Canyon Dam) and in the Tucannon River, Grande Ronde River, Imnaha River, and Salmon River subbasins (57 FR 23458), as well as the progeny of 13 artificial propagation programs (85 FR 81822). The hatchery programs include the McCall Hatchery (South Fork Salmon River), South Fork Salmon River Eggbox, Johnson Creek, Pahsimeroi River, Yankee Fork Salmon River, Panther Creek, Sawtooth Hatchery, Tucannon River, Lostine River, Catherine Creek, Lookingglass Creek, Upper Grande Ronde River, and Imnaha River programs. The historical SR ESU also included populations in the Clearwater River drainage and extended above the Hells Canyon Dam complex.

Within the SR ESU, the Interior Columbia Technical Recovery Team (ICTRT) identified 28 extant and 4 extirpated or functionally extirpated populations of spring/summer-run Chinook salmon, listed in Table 4 (ICTRT 2003; McClure et al. 2005). The ICTRT aggregated these populations into five MPGs: Lower Snake River, Grande Ronde or Imnaha Rivers, South Fork

Salmon River, MFSR, and Upper Salmon River. For each population, Table 4 shows the current risk ratings for the abundance or productivity and spatial structure and diversity VSP risk parameters.

Spatial structure risk is low to moderate for most populations in this ESU (Ford 2022) and is generally not preventing the recovery of the species. Spring/summer Chinook salmon spawners are distributed throughout the ESU albeit at very low numbers. Diversity risk, on the other hand, is somewhat higher, driving the moderate and high combined spatial structure or diversity risks shown in Table 4 for some populations. Several populations have a high proportion of hatchery-origin spawners—particularly in the Grande Ronde, Lower Snake, and South Fork Salmon MPGs—and diversity risk will need to be lowered in multiple populations in order for the ESU to recover (ICTRT 2007; ICTRT 2010; Ford 2022).

Table 4. Summary of viable salmonid population (VSP) parameter risks, current status, and proposed recovery goal for the Middle Fork and Upper Salmon River in the Snake River spring/summer Chinook salmon evolutionarily significant unit (Ford 2022; NMFS 2017).

Major Population Group	Population[2]	VSP Risk Rating[1]		Viability Rating	
		Abundance/ Productivity	Spatial Structure/ Diversity	2022 Assessment	Proposed Recovery Goal[3]
South Fork Salmon River (Idaho)	Little Salmon River	*Insuf. data*	Low	High Risk	Maintained
	South Fork Salmon River mainstem	High	Moderate	High Risk	Viable
	Secesh River	High	Low	High Risk	Highly Viable
	East Fork South Fork Salmon River	High	Low	High Risk	Maintained
Middle Fork Salmon River (Idaho)	Chamberlain Creek	High	Low	High Risk	Viable
	Middle Fork Salmon River below Indian Creek	High	Moderate	High Risk	Maintained
	Big Creek	High	Moderate	High Risk	Highly Viable
	Camas Creek	High	Moderate	High Risk	Maintained
	Loon Creek	*Insuf. data*	Moderate	High Risk	Viable
	Middle Fork Salmon River above Indian Creek	High	Moderate	High Risk	Maintained
	Sulphur Creek	High	Moderate	High Risk	Maintained
	Bear Valley Creek	Moderate	Low	Maintained	Viable
	Marsh Creek	Moderate	Low	Maintained	Viable
Upper Salmon River (Idaho)	North Fork Salmon River	*Insuf. data*	Low	High Risk	Maintained
	Lemhi River	High	High	High Risk	Viable
	Salmon River Lower Mainstem	High	Low	High Risk	Maintained
	Pahsimeroi River	High	High	High Risk	Viable
	East Fork Salmon River	High	High	High Risk	Viable
	Yankee Fork Salmon River	High	High	High Risk	Maintained
	Valley Creek	High	Moderate	High Risk	Viable

Major Population Group	Population[2]	VSP Risk Rating[1]		Viability Rating	
		Abundance/ Productivity	Spatial Structure/ Diversity	2022 Assessment	Proposed Recovery Goal[3]
	Salmon River Upper Mainstem	High	Low	High Risk	Highly Viable
	Panther Creek[4]	*Insuf. data*	High	High Risk	***Reintroduction***
Lower Snake (Washington)	Tucannon River	High	Moderate	High Risk	Highly Viable
	Asotin Creek			***Extirpated***	***Consider Reintroduction***
Grande Ronde and Imnaha Rivers (Oregon/ Washington)[5]	Wenaha River	High	Moderate	High Risk	Highly Viable or Viable
	Lostine/Wallowa River	High	Moderate	High Risk	Highly Viable or Viable
	Minam River	Moderate	Moderate	Maintained	Highly Viable or Viable
	Catherine Creek	High	Moderate	High Risk	Highly Viable or Viable
	Upper Grande Ronde River	High	High	High Risk	Maintained
	Imnaha River	High	Moderate	High Risk	Highly Viable or Viable
	Lookingglass Creek			***Extirpated***	***Consider Reintroduction***
	Big Sheep Creek			***Extirpated***	***Consider Reintroduction***

[1]Risk ratings are defined based on the risk of extinction within 100 years: High = greater than or equal to 25 percent; Moderate = less than 25 percent; Low = less than 5 percent; and Very Low = less than 1 percent.
[2]Populations shaded in gray are those that occupy the action area. The Upper Salmon River populations migrate through the mainstem Salmon River portion of the action area.
[3]There are several scenarios that could meet the requirements for ESU recovery (as reflected in the proposed goals for populations in Oregon and Washington). What is reflected here for populations in Idaho are the proposed status goals selected by NMFS and the State of Idaho.
[4]Although considered functionally extirpated in the late 1960s, redds have been documented in Panther Creek every year since 2005. Considering the natural spawning that has occur, the role of the Panther Creek population in the MPG recovery scenario may be reevaluated (NMFS 2022).
[5]At least one of the populations must achieve a very low viability risk rating.

Abundance and Productivity. Historically, the Snake River drainage is thought to have produced more than 1.5 million adult spring/summer Chinook salmon in some years (Matthews and Waples 1991), yet in 1994 and 1995, fewer than 2,000 naturally produced adults returned to the Snake River (ODFW and WDFW 2022). From the mid-1990s and the early 2000s, the population increased dramatically and peaked in 2001 at 45,273 naturally produced adult returns. Since 2001, the numbers have fluctuated between 32,324 (2003) and 4,183 (2019) (ODFW and WDFW 2022). Productivity is below recovery objectives for all of the populations (NMFS 2017) and has been below replacement for nearly all populations in the ESU since 2012 (Nau et al. 2021).

As reported in the most recent viability assessment (Ford 2022), the five-year (2015-2019) geometric mean abundance estimates for 26 of the 27 evaluated populations are lower than the corresponding estimates for the previous five-year period by varying degrees, with an average decline of 55 percent. The consistent and sharp declines in 15-year population trends for all populations in the ESU are concerning, with the abundance levels for some populations approaching similar levels to those of the early 1990s when the ESU was listed (NMFS 2022).

No populations within the ESU meet the minimum abundance threshold designated by the ICTRT (NMFS 2022), and the vast majority of the extant populations are considered to be at high risk of extinction due to low abundance or productivity (Ford 2022). Therefore, all currently extant populations of Snake River spring/summer Chinook salmon will likely have to increase in abundance and productivity in order for the ESU to recover.

Summary. Overall, this ESU is at a moderate-to-high risk of extinction. While there have been improvements in abundance or productivity in several populations since the time of listing, the majority of populations experienced sharp declines in abundance in recent years. If productivity remains low, the ESU's viability will become more tenuous. If productivity improves, populations could increase again, similar to what was observed in the early 2000s. This ESU continues to face threats from disease; predation; harvest; habitat loss, alteration, and degradation; and climate change.

2.2.1. Climate Change Implications for ESA-listed Species

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 or 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 salmon and steelhead populations more difficult to achieve as a result of its impacts on freshwater, estuarine, and ocean conditions. Climate change is expected to alter critical habitat within the Snake River basin by generally increasing water temperature and peak flows and decreasing base flows. Although these changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of freshwater critical habitat to support successful spawning, rearing, and migration. Climate will also impact ocean productivity, and is likely to lead to a preponderance of low productivity years (Crozier et al. 2020). Reductions in ocean productivity can reduce the abundance and productivity of salmon and steelhead. Habitat restoration actions can help ameliorate some of the adverse impacts of climate change on salmon. 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 or refuge habitat (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 SR spring/summer Chinook salmon. Climate change predicts warmer drier climates in much of the Northwest. 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.

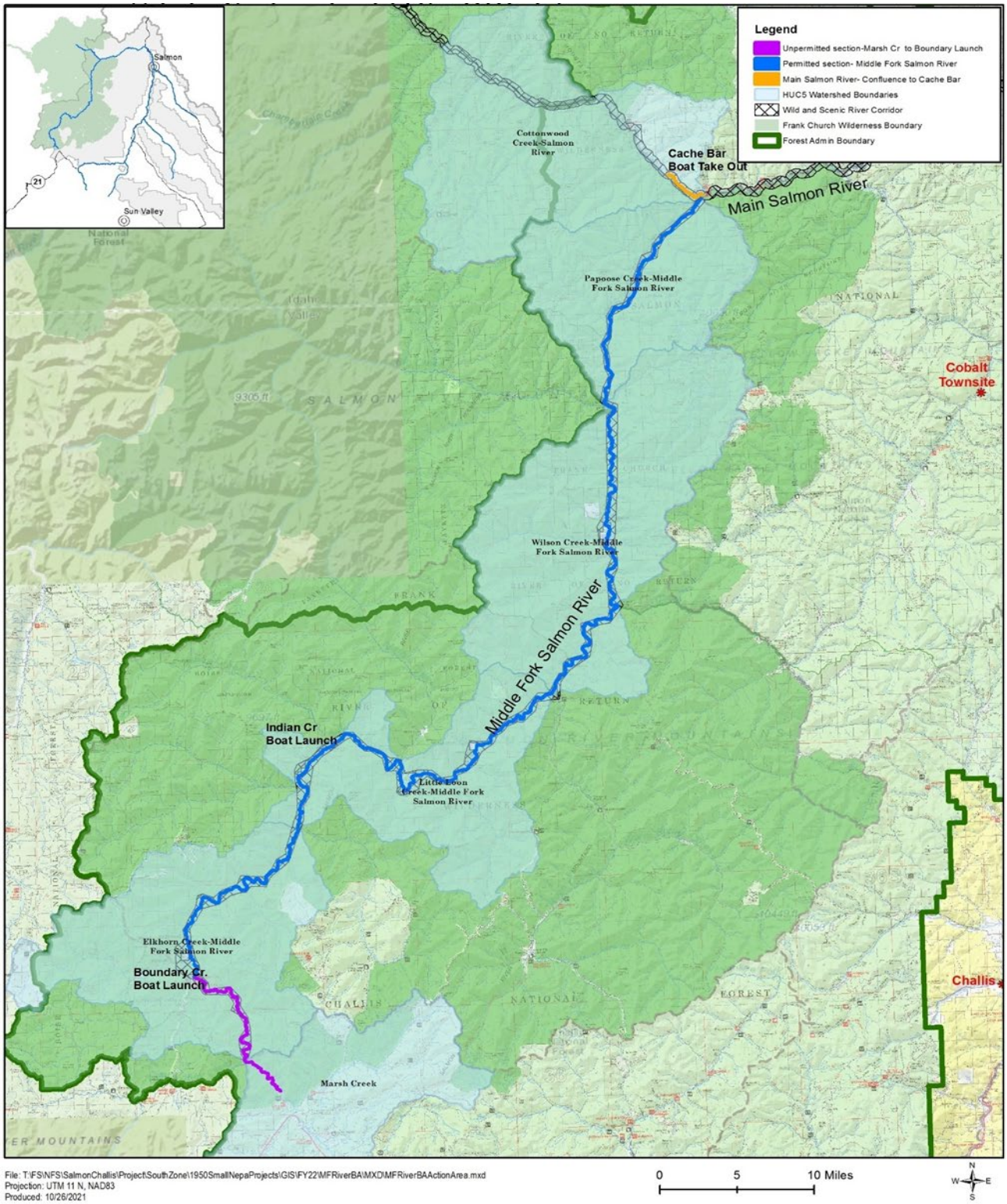
2.3. Action Area

"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). The action area is primarily located within the FC-RONR Wilderness Area, within the SCNF, and within Custer, Idaho, Lemhi, and Valley Counties. These lands encompass approximately 1,832,283 acres of the total 2,366,757 acres within the FC-RONR Wilderness and are administered by the Middle Fork and North Fork Ranger Districts of the SCNF. Project activities occur within the Marsh Creek (Hydrologic Unit Code [HUC] 1706020503), Elkhorn-Middle Fork Salmon River (HUC 1706020504), Little Loon-Middle Fork Salmon River (HUC 1706020509), Wilson-Middle Fork Salmon River (HUC 1706020604), and Papoose-Middle Fork Salmon River (HUC 1706020610) fifth field Hydrologic Units of the two subbasins. A short section of permitted activity occurs within the Cottonwood Creek-Salmon River (HUC 1706020701) watershed, which occurs within the Middle Salmon-Chamberlain (HUC 17060207) subbasin (Figure 2).

All floating activities are managed by the Middle Fork Ranger District. There are 4,265 acres of state and privately-owned land within the action area.

For purposes of this consultation, the action area includes all aquatic habitats in the unpermitted section of the Marsh Creek, from Highway 21 downstream to Dagger Falls, and in the permitted section from Dagger Falls downstream to Cache Bar on the main Salmon River (Figure 2). There is approximately 106 miles of mainstem MFSR, 3.0 miles of the main Salmon River, and 4.2 miles of Marsh Creek within this area. All designated camp sites within this area are also included in the action area.

SR spring/summer Chinook salmon are present in the action area. The MFSR is primarily migratory habitat for SR spring/summer Chinook salmon. However, some Chinook salmon spawning does occur in the upper reaches of the river. The main Salmon River, in the action area, is migratory habitat for SR spring/summer Chinook salmon.



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Projection: UTM 11 N, NAD83
Produced: 10/26/2021

Figure 2. Middle Fork Salmon River Recreational Floating Activities Action Area.

2.4. Environmental Baseline

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

NMFS describes the environmental baseline in terms of the biological requirements for habitat features and processes necessary to support all life stages of each listed species within the action area. SR spring/summer Chinook salmon resides in or migrates through the action area. Thus, for this action area, the biological requirements for Chinook salmon are the habitat characteristics that support successful completion of spawning, rearing, and freshwater migration.

Located primarily in the FC-RONR Wilderness, fish habitat conditions of mainstem reaches and tributaries of the MFSR are in generally pristine condition. Overall physical habitat quality, including the elements of water quality, flow/hydrology, channel conditions and structural habitat elements, is considered good, and connectivity is excellent. Aquatic habitats within the Marsh Creek, Elkhorn, Little Loon, Wilson, and Papoose watersheds are considered in good to excellent condition based on limited available data (SCNF 2022).

Approximately 95 percent of the watersheds lie within designated wilderness. Disturbances within the watershed have not been of sufficient scope or magnitude to influence flow regimes or produce significant increases in drainage networks. Very little of the watershed is in stands less than 30-years-old. Riparian habitats are in good to excellent condition. Anthropogenic habitat alterations are minimal. Fire is a prominent landscape-level perturbation. Debris flows are common occurrences in recently burned areas after heavy, localized rainstorms. These debris flows result in increased sedimentation and channel alterations, such as localized damming. They also contribute episodic large woody debris contributions to the river system.

As indicated in Appendix B of the SCNF's final BA (2022) (incorporated by reference), nearly all habitat conditions in the action area are functioning appropriately. Only the Cottonwood Creek- Salmon River and Marsh Creek-Salmon River HUCs had any indicators categorized as "functioning at risk." The Cottonwood Creek- Salmon River HUC indicators functioning at risk were water temperature, sediment, streambank condition, and riparian conservation areas. The Marsh Creek-Salmon River HUC indicators functioning at risk were water temperature, streambank condition, and disturbance history or regime.

2.4.1. Chinook Presence in Action Area

Chinook salmon rearing, migration, and spawning are found throughout the action area. Juvenile rearing occurs year round. Adult Chinook salmon are typically staging in the Middle Fork Salmon River by early June. Due in part to the remoteness of the area, monitoring has not been conducted throughout the spawning season, therefore, there is no conclusive information regarding the timing of Chinook spawning in the mainstem MFSR.

Spawning periodicity data developed by the Upper Salmon Basin Watershed Project Technical Team (USBWP 2005) identify a general initiation date of August 15 for Chinook salmon spawning activity in the MFSR drainage. Data taken by the SCNF from the past ten years help confirm the August 15 date for general initiation of spawning (SCNF 2022). However, Chinook salmon spawning surveys have identified initiation of Chinook salmon spawning in Upper Middle Fork Salmon tributaries as early as July 21. Based on the 2022 SCNF BA Figure 6, August 8th may be a more realistic estimation for general initiation of MFSR mainstem spawning. Incubation of eggs can occur through the end of April (USBWP 2005). Juveniles migrate out of rearing areas starting in early May through July.

Annual surveys of Chinook salmon spawning activity from the headwaters and tributaries of the MFSR to the confluence with the main Salmon River have been conducted by the U.S. Forest Service Rocky Mountain Research Station since 1995. The majority of spawning (98%) they documented occurs in tributaries to the MFSR. On average, approximately 1.6 percent of the annual (2009-2021) Chinook salmon run spawn in the mainstem MFSR (Table 5). No spawning activity has been recorded in the main Salmon River from the confluence of the MFSR downstream to Cache Bar.

Within the MFSR, Chinook salmon redds have been identified from the headwaters of Marsh Creek to approximately 1.5 miles above the confluence of the MFSR with the main Salmon River (Thurow 2021). Redd densities are not expected to be continuous across this entire length of river as much of the river is too steep and substrate too large to provide suitable spawning habitat. This results in individual or small concentrations of redds being widely distributed in sites providing suitable substrate and water conditions throughout the mainstem MFSR.

Table 5. Chinook Salmon Redd Counts Within the Middle Fork Salmon River Drainage

Year	Total Redd Counts Upper and Lower MF HUC 4[5]	Redd Counts Upper and Lower MF Salmon River Tributaries[6]	Redd Counts Mainstem Middle Fork Salmon River Action Area	Percent Middle Fork/Total Count
2009	585	581	4	0.7
2010	1,018	1,007	11	1.1
2011	1,244	1,222	22	1.8
2012	1,149	1,133	16	1.4
2013	656	654	2	0.3
2014	1,439	1,427	12	0.8
2015	1,069	1,053	16	1.5
2016	901	886	15	1.7
2017	250	239	11	4.4
2018	425	419	6	1.4
2019	161	157	4	2.5
2020	467	456	11	2.4
2021	362	358	4	1.1

[5] Data does include Big Creek

[6] Marsh Creek, including tributaries Cape Horn, Knapp, Beaver, and Winnemucca Creeks; Bear Valley Creek, including Elk, Porter, West Fork Elk, and East Fork Elk Creeks; Sulphur Creek; Rapid River; Pistol Creek, including Little Pistol Creek; Indian Creek; Marble Creek; Loon Creek, including Warm Spring, Mayfield, West Fork Mayfield, and East Fork Mayfield Creeks; and Camas Creek; including West Fork Camas Creek.

Actions or activities that have occurred or continue to occur within the Upper and Lower MFSR watersheds are historic mining, livestock grazing, trails, water diversions, outfitting and guide operations, back-country airstrips, and recreation. There are several private inholdings within the wilderness. The principal landscape-changing force in the area is wildfire, which is predominantly lightning-caused.

Within the action area, the unpermitted section (from Highway 21 to Dagger Falls) had a total of 255 documented Chinook salmon redds since 1995, 189 of these were in Marsh Creek and 66 were in the MFSR (SCNF 2022). Within the action area, the permitted section of the MFSR has had a total of 222 documented redds since 1995 (SCNF 2022).

Within the permitted section, redd numbers ranged from zero to 34 during this period but were fewer than 16 in the last 24 of the 27 years, for which data are available (Table 6). Considering the total number of observed redds in the entire MFSR from 1995 to 2021, an average of 1.26 percent of the total number of observed redds were potentially exposed to float boating annually (Table 6).

Table 6. Chinook Salmon Redd Counts in The Permitted Section of The Action Area (1995 - 2021).

Year	Total Redd Counts Upper and Lower MF HUC 4	Chinook Redds Middle Fork (mainstem)	Chinook Redds Boundary to Indian[7]
1995	20	0	0
1996	83	1	1
1997	424	5	3
1998	661	2	2
1999	110	0	0
2000	318	16	1
2001	1,789	34	14
2002	1,730	11	8
2003	2,271	26	15
2004	832	12	6
2005	458	5	5
2006	261	3	2
2007	358	3	3
2008	471	6	4
2009	585	2	1
2010	1,018	5	3
2011	1,244	13	12
2012	1,149	7	6
2013	656	1	1
2014	1,439	9	8
2015	1,069	13	4
2016	901	15	9
2017	250	9	6
2018	425	5	4
2019	161	4	4
2020	467	11	7
2021	362	4	3

Eight of the nine MFSR populations could be affected by the proposed action. The Chamberlain Creek population occurs downstream of the action area and will not be affected. Fish from each of the remaining eight populations migrate through the action area. Approximately 98 percent of the spawning in the MPG occurs in tributary streams (Thurow 2009). Mainstem MFSR spawning typically occurs in only the higher reaches but has been observed 3 miles upstream from the MFSR mouth. Float boating interactions with spawning adults or redds is only anticipated in the following populations: (1) MFSR below Indian Creek (Lower MFSR); (2) MFSR above Indian Creek (Upper MFSR); and (3) Marsh Creek. This opinion focuses on these three populations as they are most likely to be affected by the potential adverse effects. The current viability status criteria (ICTRT 2007) for these populations is provided in Table 4.

Climate Conditions*:* As previously stated in Section 2.2.1, climate change has the potential to affect ecosystems throughout the Snake River basin. Given the increasing certainty that climate change is occurring and is accelerating, NMFS anticipates Chinook 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.

2.5. Effects of the Action

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.

2.5.1. Effects to Species

The proposed action will authorize boats to float through sections of river while SR spring/summer Chinook salmon are rearing, migrating, staging to spawn, preparing redds, and potentially after redds are established. The proposed action has the potential to affect SR spring/summer Chinook salmon by disturbing adults and rearing juveniles. 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 juveniles affected by this action to be able to access nearby cover and avoid injury or death (behavioral effect only). For adult Chinook salmon spawning, passing boats could influence spawning site pre-selection and selection, redd construction, and pre-spawning, spawning, and post-spawn behaviors. Impacts are typically caused by boats floating over or near females that spook them off redds, which could cause stress. Stress could result in pre-spawning mortality or insufficient egg burial depth, if stress was extreme and stressed fish lacked adequate energy reserves. Eggs and pre-emergent fry of

Chinook salmon could potentially be displaced or damaged from boats or oars grounding[8] on redd substrates. Post-spawn fish could be displaced from redds, potentially losing the protection provided by a fish defending the redd site. Observations of boats floating by redds on the MFSR have shown repetitive disturbance of boats spooking fish off redds, and potential impacts from boats impacting redds, or boaters getting out of boats and wading on redds (SNF 2021). Float boating activities are not expected to exacerbate the effects of climate in the action area because project activities will not affect flows or temperature, the two primary climate change impacts in the action area.

2.5.2. Middle Fork Salmon River Floating Use

The floating segments of the river can be broken down into two primary sections – the "permitted" and "unpermitted" sections. The permitted section begins at the Boundary Creek boat ramp, approximately 0.5 miles below Dagger Falls, and extends downstream to the Corn Creek boat ramp (approximately 100 miles). At low water levels private floaters and outfitters often launch farther downstream from Indian Creek, Flying B Ranch, Loon Creek, and Little Creek. These trips account for approximately 28 percent of annual river launches. Indian Creek is the most popular alternative launch point (i.e., 22% of total launches) and is approximately 25 miles downstream of Dagger Falls. The other launch points are farther downstream. Floaters using these launch points do not float the upper section[9], which is the shallowest and most prone to boat grounding. The unpermitted section begins at the Highway 21 crossing of Marsh Creek, extends 16 miles down Marsh Creek to its confluence with the MFSR, and continues to Dagger Falls for a total of approximately 28 miles. This reach is primarily floated early in the season when snow restricts access to Dagger Falls. An average of 32 launches (i.e., groups) float this reach annually (approximately 5% of total launches).

River launches, commercial and private, are limited to seven per day during the control season. Four of the seven daily launches are allocated to non-commercial parties. Commercial group size may be up to 30 people, although the average is 24 per group. Non-commercial group size is limited to 24 people, with an average size of nine per group. The 12 year average number of craft and people floating the MFSR is provided in Table 2. Overall, there is an average of seven boats per group. However, the number of boats per group is not regulated, and this number has been rising. Assuming the maximum of seven groups (commercial and non-commercial), with an average of seven boats per group, a low estimate of 49 boats may pass any given point on the river during a single day. However, since the number of craft is not regulated early in the season, the number could be theoretically be as high as 168 to 210 boats daily (assuming one boat per person). During the Chinook spawning season, the number of craft per party would be limited to 12 resulting in a maximum of 84 boats per day. Groups are usually on the river from 10:00 AM to 4:00 PM each day and generally travel together. Some groups get widely dispersed along the

[8] Grounding is common, especially in the 25 miles between Boundary Creek and Indian Creek when the river level is below two feet.

[9] Some boats are deadheaded (i.e., floated without passengers and with no camps) from the Boundary Creek launch down to the alternative launch site). Deadheaded boats can result in more boats launching from Boundary than the seven party limit identified in the proposed action.

river due to varying craft speed, group activities, and skill levels. However, in a typical situation, with seven groups on the river, the average interval between groups would be approximately 45 minutes.

2.5.3. Spawning Chinook Salmon Exposure to Float Boats

Chinook salmon redds in the action area have been aerially counted and mapped since 1995. There are several areas that provide appropriate spawning habitat, which is demonstrated by repeated spawning occurring there during the period of record. Exposure potential is evaluated for each fifth field HUC in the action area (Figure 2).

Marsh Creek. Marsh Creek occurs within the unpermitted section of the action area and floating use is limited to approximately 32 annual launches, all occurring in spring. Because use occurs only in the early season, before Chinook salmon spawning, no exposure to Chinook salmon would occur in this reach. Chinook salmon eggs buried the previous fall are expected to emerge prior to May and thus only the earliest floaters would have potential to float over incubating eggs.

Marsh Creek cannot be floated until the stream is ice free, typically early May. Road access to the Boundary Creek launch site varies with the weather. Over the past 20 years vehicle access has been possible as early as the second week in May and as late as mid-June. Peak flows in Marsh Creek also vary annually but typically crest near mid-May. It takes just 1 day to float this reach and users do not typically access any campsites en route to the MFSR proper. Water levels are typically increasing or at their peak when Marsh Creek is being floated and grounding of boats on gravels is infrequent.

Elkhorn-MFSR. Floating activities along the unpermitted section of the MFSR, between the confluence of Bear Valley and Marsh Creeks to Dagger Falls, would not be exposed to spawning Chinook salmon. No commercial trips occur on this reach and private use does not occur here during the Chinook salmon spawning period.

In the permitted section of this HUC, likely spawning habitat occurs near Cable Hole Camp (River mile [RM] 1.6), above Sulphur Slide Rapid (RM 2.45), and above the Chutes Rapid (RM 8.0) (SCNF 2010). Boats may not be able to avoid floating over the spawning habitat above the Chutes, but the other areas are avoidable with a deep thalweg being present on the side of the river opposite of the spawning gravels.

Little Loon-MFSR. Quality spawning gravels were identified in the left and right channels below Big Snag Camp (RM 19.0). Gravels in the right main channel are associated with the pool tail out. Good spawning gravels also occur below Cannon Rapid (RM 19.3). Boats would likely pass over any redds that occur in the right channel and below the rapid. The SCNF indicated that closure of the Big Snag or Dolly Lake Camps (RM 19.1) during spawning season (if redds are constructed) may be an option to avoid physical disturbance but did not indicate this was definitively proposed (SCNF 2010).

Good spawning gravels and documented spawning activity occur in the pool tail out below Sunflower Hot Spring (RM 32.6). This area may be unavoidable for river floaters, but closure of the nearby camp during the spawning season may also help avoid physical disturbance.

Spawning gravels at RM 46.6 cannot be avoided. A camp previously located at this location has been closed and is no longer used. Considerable spawning habitat and documented spawning also occurs right before Loon Creek (approximately RM 49). The width of the channel in this area appears to allow floating to the right or left of the channel to avoid floating directly over spawning gravels (SCNF 2010).

Wilson-MFSR. Only scattered individual redds have been observed in this HUC. Potential spawning gravels below Wilson Creek (RM 72.9) and above Wollard Creek (RM 74.9) are unavoidable. No spawning activity has been documented at either area making the likelihood of direct disturbance small (SCNF 2010).

Papoose-MFSR. Only scattered individual redds have been observed in this HUC. Quality spawning substrate exists near the Cliffside Camp (RM 89.7) (SCNF 2010). Keeping boats in the thalweg will easily avoid the spawning gravels present. However, landing and launching near these areas could cause physical disturbance to gravels and redds if present.

Mid Salmon-Cottonwood. No Chinook spawning activity has been documented in this section of the main Salmon River.

Summary. Chinook salmon spawning occurs late in the year (August through early September) in the mainstem MFSR when water levels are low. Chinook salmon spawning is widely distributed, scattered across most of the action area. As a result, boats will likely float over some fish and redds, likely in shallow water, resulting in exposure of project activities to pre- or post-spawn fish. Boats could be drug across redds when accessing some designated camp sites and increased human activities near camps may pose additional disturbance risks to nearby spawning fish. However, there is potential to close camps where these risks are highest and thus minimize the risk. Total redds observed in the permitted section ranged from 0 to 34 during the period of record (Table 6), but fewer than 16 redds occurred in 88 percent of the years surveyed. Considering the MFSR Chinook salmon runs from 1995 to 2021, an average of 1.26 percent of the total number of observed redds (not counting Big Creek) were exposed to float boating annually (range 0.3% to 4.4%) (Table 5). The greatest number of redds are present in the two upper fifth field HUCs (Elkhorn and Little Loon). Because of low water late in the floatboat season, when Chinook salmon are spawning, a significant number of launches avoid these reaches by launching at alternative sites at least 25 miles downstream of Boundary Creek. This launch pattern reduces the number of boats that may pass by more vulnerable redds in the upper section of the action area.

Fry are expected to have exited gravels by the time boaters float Marsh Creek in the spring. High flows during this period also greatly reduce the likelihood that boats would ground on stream substrate. Water levels are generally too low during control and post-control season to launch from Marsh Creek. Therefore, there is very little risk of contacting incubating eggs while floating Marsh Creek.

2.5.4. Effects on Listed Species

Repetitive disturbance to fish by float craft can influence SR spring/summer Chinook spawning site pre-selection and selection; redd pre-construction and construction; and pre-spawning, spawning, and post-spawning behaviors. Impacts are typically caused by boats floating over or near females or wading close to fish, which may spook them off redds. Repeated movement away from the spawning location could potentially result in pre-spawning mortality or insufficient burial depth of eggs, or reduced protection of eggs by the fish post-spawn. Egg and pre-emergent fry of Chinook salmon could potentially be displaced or damaged by impacts from boats or oars. Widespread effects on salmon adults, eggs or pre-emergent fry can affect short- and long-term population viability due to the low number of adults expected to return as spawners most years.

During the pre-spawning period, floating boats or people wading through spawning habitats are likely to disrupt natural site selection behavior by introducing a perceived threat. Monitoring conducted by the SCNF on the MFSR has shown repetitive disturbance of boats spook fish off redds, and potential impacts from boats on redds or boaters getting out of boats and wading on redds (SNF 2021). There is also monitoring information, in which there were two instances of fish abandoning 'test redds' that were exposed to floating boats (Sawtooth National Recreation Area [SNRA] 2009). Spooked fish will likely flee to other, potentially to less suitable, habitats, delay spawning, or abandon spawning altogether.

Test redds occur naturally, and the limited information makes it impossible to definitively identify float boating as the causal factor for the observed abandonments. However, the SNRA observances may reflect potential effects of increased disturbance during this sensitive period. SNRA staff observed a female Chinook salmon abandon a partially completed redd following heavy angling pressure in 1994 (SNF 2010). The same fish was later believed to have constructed another redd in a pocket of gravel within a boulder dominated reach having much higher velocities and presumably more cover (SNF 2010). Despite one observance of changed spawning location there is no clear shift in spawning site selection or timing of spawning initiation in the action area (Fornander 2008). The proposed camp closures, 12 craft per party limit, and redd location and avoidance measures implemented on and after August 15 protect pre-spawning fish within the action area. There are no studies evaluating the effects of float boating on spawning success in the action area.

Pre-spawn and spawning Chinook salmon are near the end of energy reserves (Mesa and Magie 2006), and extra energy expenditures caused from human-induced disturbances could result in reduced reproductive success, or premature death. For the few spawning salmon that are exposed to floatboat activities each year (0 to 34 redds), some critical energy reserves must be used in flight and avoidance behaviors. In an evaluation of energy expenditure from migration until after spawning, Mesa and Magie (2006) reported that Chinook salmon in the Yakima River used 95 to 99 percent of their muscle and 73 to 86 percent of their visceral lipid stores by the time of death post-spawn. Although they did not report on energy reserves during spawning initiation, these values suggest that any additional energy use could further reduce already limited energy reserves, which could have adverse effects on a fish's ability to successfully spawn, including possibly burying eggs too shallow, where they could be damaged or scoured at high flows. Low and declining numbers of returning adult salmon, described in the baseline, increases the

importance that each fish that successfully migrates to the area successfully spawns and that deposited eggs successfully hatch.

For the few spawning salmon that are exposed to float boat activities each year, some critical energy reserves must be used in flight and avoidance behaviors. Campbell and Moyle (1992) reported that rafting over staging adult Chinook salmon resulted in a six-time increase in the number of individual fish movements made every 20-minutes (1.1 fish movements/20 minutes vs. 0.2 fish movements/20 minutes). However, the number of movements for both the control fish and disturbed fish was still very low. Float boating has not been researched extensively and there are no studies that address its effect on the reproductive success of spawning salmon (Fornander 2008).

Fish response to the expected disturbances is an important factor in assessing the action's impact. In an attempt to evaluate fish response to float boating, the adjacent SNRA and SCNF have completed multiple evaluations over the long history of float boating on those Forests. A summary of these mostly anecdotal observations is provided below:

1. Adult salmon were not typically displaced from redds if boats passed at a distance greater than 25 feet (James 1976; Dufour 1994; Olson 1996; SNRA 2009).

2. Salmon typically fled from boats passing within 25 feet of an active redd. Salmon returned to the redd within 5 to 60 minutes of displacement (Ries 1995; Olson 1996; SNRA 2009; SNF 2021).

3. There have been instances when boats float close to active fish and no displacement occurs, even when floaters exhibit heavy paddling in close proximity to spawning fish (SNRA 2009; Olson 1996; Dufour 1994, SNF 2021).

4. Salmon were observed to routinely move away from redds as a result of natural spawning behavior (e.g., chasing, redd defense from egg eating fish, avoidance of predatory birds, and avoidance of other fishes, etc.) and natural disturbances such as passing ducks and osprey (Ries 1995; Olson 1996; Dufour 1994; SNRA 2009).

5. The resulting energy expenditure and effects of displacements on spawning success could not be determined.

Observed behaviors tended to differ dramatically by individual fish and/or can be influenced by individual site characteristics where boat or fish interactions occur. For example, salmon were observed to flee some boats when they passed quietly at 40 feet while others remained with the redd even when boats passed directly overhead and the occupants were busy paddling.

Although reproductive success is likely to be affected in some instances of exposure to boats, via increased movements near the end of the fish's lives, the amount of exposure and its significance have been effectively avoided or minimized by the proposed action. Redd surveys for the past 27 years indicate that a maximum of 34 redds per year have been exposed to floating activities and

that most years fewer than 16 redds have been exposed. Because most Chinook salmon in the MFSR populations spawn in tributary streams, an average of less than 2 percent of documented Chinook salmon redds in the MFSR system have been exposed annually (range 0% to 4.4%). A small number of adult Chinook salmon will be disturbed from floatboat activities, and the total effect of this disturbance on the population is expected to be very small.

The SCNF will limit the number of boats to 12 per launch during the Chinook salmon spawning season (August 15 to September 15). The SCNF has also included measures that allow real time reporting of new redd locations throughout the season back to the Boundary Creek launch point. Once redds are found, the SCNF proposes to map redds and distribute maps to floaters and display them at launch sites. The SCNF will also identify appropriate avoidance measures to keep boaters from floating over or paddling near redds, and prescribing quiet floating behavior in those areas to avoid or minimize potential disturbances. The SCNF also proposes to close camp sites where typical activities would cause unnecessary disturbance to redds or spawning fish. The low water levels during Chinook spawning periods also causes many floaters to launch downstream of the primary spawning areas and reduces the number of boats floating there. Under the proposed action, approximately 1.6 percent of spawning fish/redds in the MFSR populations could be exposed to float boating activities.

Once spawning is complete, trampling of redds could also occur if floatboaters exit the boat and walk on a redd, or if a boat becomes grounded in shallow water on a redd. Damage to embryos in the gravel, from boat or oar strike, or wading, could potentially lead to direct impacts on their survival. Although Chinook salmon have been recorded to spawn at stream depths between 2 inches and 23 feet (Meehan 1991), Chinook salmon spawning in the action area is believed to occur between 1.5- and 3.5-foot depths (NMFS 2021). Floatboats draft less than 1 foot of water and typically stay near the deepest portion of the channel to avoid grounding the boat. Grounding of a boat or walking on a redd is conceivable. The proposed measures to close campsites where ingress or egress of boats would be near established redds will greatly reduce the potential for redd trampling by floaters. Quiet zone restrictions require floating the deepest channels, further reducing potential harm to redds. Signs at access points describe redd locations helping all users avoid redd boat interactions. For guides, their familiarity with river conditions and redd locations further assists their entire groups in avoiding redds. For these reasons, it is unlikely that boats will strike a redd or that floatboaters will disturb actively spawning fish or trample SR spring/summer Chinook redds.

For floatboats using the unpermitted reach, Highway 21 to Boundary Creek, the chance that boats could ground and disturb or destroy incubating eggs is very unlikely to occur. Fry are expected to have emerged from stream substrates prior to this reach being floated. If some embryos remained in the gravels into May, peak flows during May and early June greatly reduce the likelihood of boats grounding. For these reasons it is very unlikely that MFSR permit holders that access the MFSR via Marsh Creek will affect spring/summer Chinook salmon.

Habitat-related Effects. The action as proposed has the potential to affect all life history stages of Chinook salmon by affecting forage (via AIS); water quality (e.g., turbidity/water temperature), spawning gravel; cover/shelter; riparian vegetation; and space. Given the nature of this action, these habitat-related effects will only take place at river access sites and campsites. Impacts to

migrating or rearing Chinook could occur if permitted activities routinely affected the fish's ability to use instream habitat. It could also affect incubating redds and migrating or rearing Chinook if permitted activities led to extensive bank trampling and surface erosion. However, the action area is primarily located in the wilderness, and receives little use beyond that permitted by this proposed action. Camping will occur in designated campsites only. Proposed conservation measures designed to limit effects to habitat are well established and have proven to be effective at keeping habitat-related effects to Chinook salmon to a minimum in preceding consultation periods. For a more detailed discussion of effects of the proposed action on salmonid habitat, please refer to section 2.12.2 of this opinion.

Summary. Available redd survey data from 2009 to 2021 indicates that an average of approximately 1.6 percent (range 0.3% to 4.4%) of the total number of the Chinook salmon redds in the MFSR population's may be exposed to float boating annually, thus exposing fish attending those redds to brief periods of harassment and harm. Proposed conservation measures will minimize interactions between boats and spawning fish/redds but will not necessarily eliminate them. Fish that were observed to be displaced by floating on the SNRA returned to their redds within 5 to 60 minutes following a disturbance by boats within about 25 feet (NMFS 2021). For these reasons, floatboat disturbance of pre-spawn and spawning fish is likely to take the form of harassment resulting in minor behavioral responses. However, available information precludes us from determining the biological effects of these disturbances on exposed fish. There is at least potential that some fish may abandon test redds, partially complete redds, inadequately bury eggs, or they could die before spawning. Most observations suggest exposed fish are likely to return to their spawning activities and are expected to survive to spawn. Considering 98.6 percent of the MFSR population's redds (1995-2021) and the fish tending them will not be exposed to float boating, and the other 1.4 percent of redds spawning fish are expected to experience only minor harassment or harm, the proposed action is not expected to affect VSP parameters of abundance and productivity for the following MFSR MPG SR spring/summer Chinook populations: (1) MFSR below Indian Creek (Lower MFSR); (2) MFSR above Indian Creek (Upper MFSR); and (3) Marsh Creek. Due to the effects described above, the action has no potential to affect spatial structure or diversity measures.

During the past five years abundance has dropped, with many population's nearing levels observed when the species were listed. All individual populations, including those affected by this action, are still at high risk of extinction and remain far below recovery plan abundance and productivity targets. Current abundance or productivity estimates for the MFSR MPG are below levels needed for the population to reach a maintained status, and they have recently declined.

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.

The action area is almost entirely wilderness with only a few small landlocked private and state parcels. Additional development or growth in the action area is unlikely. NMFS assumes that

future private and state actions will continue within the action area at the same level presently occurring. The conservation value of the action area is likely to be maintained with only continuing ongoing private and state activities occurring on very limited properties in the action area. NMFS is not aware of any specific future non-Federal activities within the action area that would cause greater effects to a listed species than presently occurs.

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).

Recreational float boating activities are likely to continue at levels similar to the past 10 years 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 SR spring/summer Chinook abundance or productivity. SR spring/summer Chinook abundance and productivity is therefore expected to mirror levels generated under the current environmental baseline and no new future impacts to the populations' VSP parameters are anticipated or otherwise known at this time.

2.7. Integration and Synthesis

The Integration and Synthesis section is the final step 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.

SR spring/summer Chinook abundance experienced population increases, relative to time of ESA listing, through the mid-2000s. During the past five years abundance has dropped, with many population's nearing levels observed when the species were listed. All individual populations, including those affected by this action, are still at high risk of extinction and remain far below recovery plan abundance and productivity targets. As a result the species remains threatened with extinction. Current abundance or productivity estimates for the MFSR and Upper Salmon River Salmon River MPGs are below levels needed for the population to reach a maintained status, and they have recently declined. Observed declines have been similar for all populations in the ESU and declines are believed to be tied to recent ocean conditions (NWFSC 2021), not action area conditions or impacts of the past permits.

Climate factors will likely make it more challenging to increase abundance and recover the species (NMFS 2017, Crozier et al. 2019). 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 Chinook. Spawning may incrementally shift later

in the season, further upstream, or into tributaries when and where water temperatures are more optimal. In the event such temporal or spatial shifts occur, the action would affect fewer fish than is currently projected and the action would likely have even less potential influence on population viability than the already low levels described. Management techniques proposed for the action are not expected to exacerbate the effects of climate in the action area because project activities will not affect flows or temperature, the two primary climate change impacts in the action area.

Commercial outfitted and self-guided boats floating near pre-spawn, spawning, and post-spawn Chinook is expected to cause minor harassment or harm. Encounters with pre-spawn fish that are staging in deep pools is expected to cause minor behavioral modifications, via increased frequency of movement relative to undisturbed fish. Encounters with actively spawning and post-spawning fish will be minimal and mainly avoided due to the majority of redds occurring in MFSR tributary streams and not directly in the MFSR itself. Fewer than 16 redds are likely to be exposed most years to float boating activities, but a maximum of approximately 34 redds could be exposed. This number of redds exposed to float boating is likely an overestimate because the greatest number of redds are present in the two upper fifth field HUCs (Elkhorn and Little Loon) (Figure 2). Because of low water late in the float boat season, when Chinook salmon are spawning, a significant number of launches avoid these reaches by launching at alternative sites at least 25 miles downstream of Boundary Creek. This launch pattern reduces the number of boats that may pass by redds in the upper section of the action area.

Although the biological endpoint of this type and amount of stress from float boating exposure is largely unknown, the effects are believed to be minor. Available evidence suggests that harassed fish return to redds shortly after displacement. Increased use of limited energy reserves could lead to slightly reduced egg burial depths, pre-spawn mortality, or less time protecting redds. These are largely speculative impacts as little research exists regarding the biological impacts of even these types of disturbances. Encounters with actively spawning and post-spawning fish will mostly be avoided. However, encounters that do occur are expected to brief and for only a few minutes at a time.

Damage to embryos in the gravel, from boat grounding, oar strike, or wading are not expected to occur because of the SCNF proposed redd monitoring and closure of camps where this could occur. Redd avoidance measures, that keep boats away from redds, are also proposed to minimize disturbances. Therefore, the proposed action is unlikely to result in mortality and affect the abundance or productivity values of the affected populations.

Effects to individual fish include effects to VSP parameters, namely abundance and productivity 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 the risk categories for abundance or productivity at the population scale. Similarly, we also find that the action will not likely affect the survival of the affected MPGs (MFSR and Upper Salmon River Salmon River MPGs). This is due to the low number of Chinook redds present within the action area and the low number of boats being able to access areas of suitable spawning habitat. The proposed action also supports recovery of these

populations (and consequently the MPGs) because the proposed action does not impede recovery and efforts to avoid spawning habitat will support improved productivity in the action area.

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 are no cumulative effects to consider in this jeopardy analysis.

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 SR spring/summer Chinook MFSR and Upper Salmon River Salmon River MPGs. Because the population's VSP criteria will not be significantly affected by the anticipated harassment, the VSP criteria for the MPGs is not expected to change, and thus we do not anticipate any change to the risk to the ESU. Because each of the populations MPGs is expected to maintain current production, abundance and distribution, the proposed action will support survival and recovery of the exposed populations MPGs.

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 the cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of SR spring/summer Chinook salmon.

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" if 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

In the opinion, NMFS determined that incidental take is reasonably certain to occur when float boats pass within approximately 25 feet of pre-spawn, actively spawning, or post-spawn adult

SR spring/summer Chinook, causing fish to flee and thus potentially increase the amount of energy spent, potentially compromising their spawning success. When displacement occurs, fish are expected to temporarily move away from redds for 5 to 60 minutes. As discussed above, the action could annually expose an average of 1.26 percent (range 0.3% to 4.4%) of the total number of observed redds (maximum of 34 redds) to boat traffic annually.

Redds occur at different dates and in different locations each year. The number of fish tending to each redd also varies and the number of boats floating each day can be different. For these reasons, it is impossible for NMFS to determine how many fish will be exposed to float boat interactions. In these instances we use a surrogate to describe the extent of incidental take, pursuant to 50 CFR 402.14[I]. In this case, we use the number of redds occurring in permitted floating areas as a surrogate for the amount of take. NMFS applied the best available information to estimate the total number of redds that may be exposed. Therefore, NMFS will use the number of redds occurring in permitted floating areas as a surrogate for the amount of take. Available survey data (1995 to 2021) observed zero to 34 redds in the permitted section of the action area (Boundary Creek to Corn Creek boat ramp), but fewer than 16 redds occurred in 24 of the 27 survey years. The number of redds in the permitted section appears to remain relatively constant regardless of a large or small return year. This indicates that there may be limited spawning habitat in the mainstem MFSR. Assuming this is true, it is more appropriate to use the highest number of redds observed in the permitted section than the highest percentage of redds that have been observed in the permitted section. Therefore, NMFS will consider the extent of take exceeded if more than 34 redds occur in the permitted section of the MFSR, as determined by the annual aerial count performed in the second week of September. Exceeding this limit will trigger the reinitiation provisions of this opinion.

2.9.2. Effect of the Take

In the 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 SR spring/summer Chinook salmon.

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).

The SCNF shall:

- Minimize the potential for incidental take resulting from issuance of commercial, private, and administrative float boat permits on the MFSR.

- 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. To implement RPM #1, the SCNF shall ensure that:

    a. Work with all float boat outfitters to coordinate, to the degree it is possible, to facilitate boats passing identified redds in groups. The intent is to minimize the number of individual disturbances of fish actively constructing or tending redds.

    b. Beginning for the 2023 float boat season, the SCNF will limit the number of boats to 12 per launch during the Chinook salmon spawning season (August 8 to September 15).

    c. Camps are closed as soon as weekly redd surveys identify active or completed redds in a location where normal camp activities (i.e., ingress, egress, swimming, etc.) would affect spawning fish or completed redds.

    d. The following steps are completed immediately after SCNF or participating Outfitter staff identify a new redd in the permitted section:

        (1) The SCNF River Patrol staff will radio redd coordinates to the Boundary Creek and Indian Creek launch sites;

        (2) The SCNF staff at the Boundary Creek and Indian Creek launch sites will immediately add new redd locations to an existing base map, with appropriate landmarks and river mileages;

        (3) The SCNF staff at the Boundary Creek and Indian Creek launch sites will update the permit holder's river guide map, and distribute a handout describing appropriate redd avoidance measures (e.g., quiet behavior) to safely avoid floating within 25 feet of identified redds (safety permitting), to all departing parties each day.

        (4) The SCNF staff at Boundary Creek and Indian Creek launch sites will also immediately notify all departing parties of campsites closed to protect spawning Chinook salmon or their redds.
        (5) An online version of the maps and closures described above shall be posted on the SCNF website weekly.

e. All early season (ice out to mid-June) permittees receive a map of all spring/summer Chinook salmon redds identified the previous fall along with instructions to avoid grounding boats in these locations. Maps will cover both the permitted MFSR and the unpermitted action area reach (Highway 21 to Boundary Creek).

2. To implement RPM # 2 the SCNF shall:

a. Annually monitor the compliance of commercial and non-commercial floatboaters in meeting the relevant terms and conditions listed above and the conservation measures presented in the proposed action. Monitoring methods shall be defined by the SCNF and reviewed by the Salmon-Challis Level 1 Team before the 2023 floating season begins.

b. Coordinate with other agencies that are conducting aerial redd count data and include this information in annual reports when available. Monitoring reports shall continue to spatially map redd locations and provide this information to NMFS.

(1) If the number of redds identified in the permitted floating section exceeds 34 the SCNF, with input from NMFS Level 1 staff, shall immediately implement additional floating measures, as necessary to protect additional redds for the remainder of the floating season. Subsequently, the SCNF shall notify NMFS to consider reinitiation of ESA consultation.

c. The SCNF shall submit an annual report to NMFS by March 1 addressing the monitoring identified in the proposed action and these terms and conditions.

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 streamflows.

- Currently, there are no floating restrictions from Highway 21 to Boundary Creek. Although it likely occurs infrequently, floating this reach in the fall is likely to expose significant numbers of spawning Chinook salmon and incubating eggs to disturbance or potential trampling. To eliminate this risk the SCNF should administratively close floating on this reach from mid-August until ice out in the spring.

- To ensure the IISF receives adequate receipts to maintain AIS prevention, education, and control operations in Idaho, the SCNF should deny MFSR permits for craft longer than 10 feet that show up at launch sites without the IISF sticker displayed.

- The SCNF should post AIS education information at all Federal boat ramps within their jurisdiction to help prevent the transport and introduction of AIS and improve public knowledge of the risks of AIS introduction.

- AIS education materials should also be prominently displayed and easy to find on the SCNF website and the Four Rivers Lottery website to inform the public of the risk of introduction and educate them on appropriate preventative measures.

- The SCNF should consider utilizing their authorities to conserve and recover SR spring/summer Chinook salmon by not reissuing cancelled permits during Chinook spawning season (August 15 through September 15).

- 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 Middle Fork Salmon River Recreational Floating Activities. 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 incidental 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

The previous discussion focused on the actions' (section 1.3) adverse effects to SR spring/summer Chinook salmon. The SNF determined the proposed actions may affect, but are not likely to adversely affect SR Basin steelhead and Snake River sockeye. The SCNF also determined the actions are not likely to adversely affect designated critical habitats for SR spring/summer Chinook, SR Basin steelhead, and SR sockeye. Please refer to Table 3 for the ESA listing status information for each species and habitat.

2.12.1. Effects on Snake River Basin Steelhead and Snake River Sockeye Salmon

SR Basin steelhead rear and migrate through the majority of the action area. There is very little information on spawning SR Basin steelhead in the mainstem MFSR. Mainstem spawning likely occurs in scattered locations but comprehensive redd surveys have not been completed for the MFSR. The MFSR tributaries likely support the majority of steelhead spawning in the MFSR. Core spawning areas within the subbasin are within tributaries (ICTRT 2003).

High potential intrinsic spawning habitat for steelhead (ICTRT 2007b) occurs mostly in the Marsh Creek and Elkhorn-MFSR fifth field HUCs. These areas are located at the upstream end of the action area. Spawning is believed to initiate in early April and may last through mid-June, with eggs incubating through the second week of July (USBWP 2005). The BA cited personal communications with Russ Thurow who suggests SR Basin steelhead incubation in the MFSR drainage can potentially extend as late as the third week of August, if and when cool seasonal conditions were to result in late season spawning followed by low stream temperature regimes, which prolong incubation periods.

Although SR Basin steelhead and their redds are likely to occur in the action area during the permitted activities, there is very little potential for exposure of boats to spawning steelhead to occur. SR Basin steelhead spawning occurs from mid-April to June and corresponds with high water floating conditions. Steelhead typically spawn in smaller streams than Chinook salmon and within the action area, the highest potential for exposure is in the unpermitted section from Highway 21 to Dagger Falls. Floating use of this reach primarily occurs during early spring, before the onset of steelhead spawning, but some use may occur during steelhead spawning. High streamflows during this period provide physical separation between boats and fish and also increase the speed, which boats pass a point on the river. On average 32 per year, or 5 percent of all boat launches, float this reach of river and group sizes are generally smaller this early in the season.

Although some boats are likely to pass over individual juvenile and adult steelhead, and potentially redds, the high water conditions and short duration of exposure will not result in significant effects to exposed fish. Exposed fish are expected to flee to the closest suitable refugia and exposed fish are expected to resume pre-disturbance behavior within minutes and up to an hour, similar to what was described for SR spring/summer Chinook in the preceding

opinion. These types of disturbances are expected to be rare, minor, and not significantly modifying their behavior. Therefore, we conclude startle responses incurred by steelhead will be insignificant.

Direct disturbance to spawning gravels resulting from grounding craft is less likely to occur during high and fast water conditions. These conditions result in a discountable potential for spawning steelhead or their redds to be disturbed or harmed by authorized boats. For these reasons the likelihood of the action having adverse effects on steelhead is discountable and NMFS concurs with the SCNF's determination that the proposed action is "not likely to adversely affect" SR Basin steelhead.

Adult endangered SR sockeye are quickly migrating upstream through the approximately 3.5 miles of the mainstem Salmon River portion of the action area between mid-July through October. Sockeye salmon may also temporarily enter the colder waters of the lower Middle Fork during their upstream migration. This is the only overlap of the action with SR sockeye. The Salmon River is a large river with deep pools below the confluence with the MFSR. This river section does not require a permit to float. However, permitted MFSR boats are likely to pass over migrating sockeye salmon en route to the Corn Creek boat ramp. Sockeye salmon migratory use through these waterways would likely result in some potential effects from these activities.

The influence of the activities on the seasonal and migratory movements of sockeye through the lower MFSR and mainstem waterways would be rare and very small, with the most common encounter being a boat passing overhead, likely resulting in only insignificant startle response when a fish is encountered. Sockeye do not spawn in the MFSR or the Salmon River and a boat passing overhead is expected to have little influence on their rate of migration or normal behavior. Deep water combined with the migratory behavior of the sockeye salmon in this reach will result in only insignificant effects to exposed fish.

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

The SCNF determined that the proposed action was not likely to adversely affect SR Basin steelhead, SR spring/summer Chinook, and SR sockeye salmon designated critical habitat within the action area. The designations of critical habitat for these species use the term primary constituent element (PCE) or essential features. The new critical habitat regulations (81 FR 7414) replace these terms with physical or biological features (PBFs). 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 document, 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 7). Potential effects to designated critical habitat and PBFs will be discussed in more detail below.

The action as proposed has the potential to affect the following PBFs: forage (via AIS); water quality (e.g., turbidity/water temperature), spawning gravel; cover/shelter; riparian vegetation; and space (Chinook salmon only). Any modification of these PBFs may affect freshwater spawning, rearing or migration in the action area. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, rearing, and the growth and development of juvenile fish. The remaining PBFs will not be affected by the proposed action.

Forage. Boating could potentially introduce AIS. Idaho and neighbor states invest heavily in boat inspection and decontamination measures to prevent the inadvertent introduction of these invasive species. Boats, boat trailers, and waders have all been implicated in the spread of AIS. Rothlisberger et al. (2010) found that over two-thirds of boaters still do not routinely clean their boats. Though the spread of AIS is largely unintentional, administrative actions are currently believed necessary, particularly where such uses concentrate, in order to reduce the threats.

The SCNF has proposed measures to reduce the threat of inadvertent introduction of AIS and we anticipate they will be effective. Principle measures include: (1) it will be the responsibility of the permit holder to ensure that all craft and equipment be dry and clean[10] at arrival to launch point; (2) boats will be checked at the designated launches during the permit control season to ensure they are not an obvious vector for aquatic nuisance species (i.e., dry and clean); (3) AIS education will be added to the mandatory control season boater orientation; (4) AIS educational materials will be included in packets sent to permit holders; and (5) the Idaho Invasive Species Act (IISA) of 2008 requires all boats over 10 feet in length have a valid IISF sticker displayed to legally launch and operate in Idaho. These measures are believed to greatly reduce the threat of infestation by the proposed action. For example, Rothlisberger et al. (2010) found that high and low pressure washing were 91 percent and 74 percent effective, respectively, in removing small bodied organisms. Effectiveness of these measures on smooth hulled boats common in the action area is likely to be higher. The SCNF proposed compliance checks are anticipated to ensure boats are in fact clean and dry prior to launching. For these reasons the risk of AIS infection of the action area as a result of the proposed action are very small. Thus, PBFs in the action area are unlikely to be exposed to AIS and thus effects via this pathway are discountable.

Water Quality. Habitat impacts associated with these actions include the potential introduction of soaps and or human excrement to the MFSR and/or its tributaries. Permits require all wash water be disposed above the ordinary high water mark to reduce potential for delivery to surface waters. Use of soaps below the mean high water level or in hot springs is also prohibited. All human waste, unburnable litter, and refuse is required to be carried off the river and disposed of at designated sites. Urine is discarded in the river. An average of 588 people are on the river and urinating each day. Given the mean monthly discharge of the MFSR near Middle Fork Lodge

[10] Clean means no vegetation, mud, or debris clinging to boats or equipment. Dry means no standing water in boats or equipment and no wet equipment that could provide substrate to AIS.

(approximately halfway down) ranges from approximately 600 to 4,400 cubic feet per second, this amount of urine will quickly dissipate in the river.

Table 7. 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 and Sockeye 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 and nearshore areas have also been described for Snake River Basin 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.

The MFSR is classified as a "least impacted" waterbody which was rated in "good" condition based on physical habitat characteristics, water chemistry metrics, and macroinvertebrate communities (Kosterman et al. 2008). The proposed action has been occurring for decades and water quality has remained functioning appropriately (SCNF BA, Appendix B). The proposed conservation measures are expected to retain the functioning appropriately condition and minimize the risk of chemical contamination from camp related impacts to an insignificant level.

Space. The proposed action also has the potential to affect the space PBF for SR spring/summer Chinook salmon. Use of space for Chinook spawning or migrating may be periodically influenced boats as they float through the action area. However, salmon's use of space will not be affected by every raft floating down the river, with observations suggesting that Chinook are generally not displaced by any boat passing at a distance greater than 25 feet. Conservation measures designed to avoid boats floating over redds (e.g., weekly redd surveys, mapping redd locations, establishing quiet zones, and defining avoidance measures) have proven to be effective in past years implementation of the program and should limit the number of times Chinook salmon space is influenced. When space is affected by a boat floating closer than 25 feet to a fish, space will only be affected for the period of time it takes for the group of rafts to pass by. As soon as rafts pass by, space will immediately become available and will function the same as it had prior to the disturbance. Space for Chinook will not be physically altered by the action, but

periodically limited for the very short duration while rafts are physically present. Therefore, the effect to the Chinook salmon PBF is insignificant.

Spawning Gravel, Natural Cover, and Riparian Vegetation. Due to the nature of the actions, river access sites and campsites are the only areas where direct effects to critical habitat are expected to occur. Impacts to spawning gravel, natural cover, and riparian vegetation could occur if permitted activities caused extensive bank trampling and loss of riparian vegetation followed by bank instabilities that subsequently deliver excessive sediment to spawning gravels.

Permittees will routinely camp at the approximately 99 designated campsites along the MFSR. Repeated use of camp sites, along with boat launching and landing, can degrade shoreline and riparian conditions. Although there are 99 campsites in the action area, they are distributed across 106 miles of river (212 miles of shoreline). If each campsite's shoreline footprint is a maximum of 150 feet (considered an overestimate), approximately 2.8 miles of action area shoreline (1.3%) would be affected to some degree. Although a small measurable amount of the action area will be affected, the SCNF commitment to maintaining site conditions, combined with the high rock content of action area streambanks, should reduce potential for sediment contributions.

Monitoring of MFSR campsites in 2009 indicated that 28 percent of sites are in Frissell Condition Class IV and 9 percent are in Frissell Condition Class V (SCNF BA 2022). Monitoring of Middle Fork River campsites in 2019 indicated that 27.9 percent of sites are in Frissell Condition Class IV and 6.4 percent of sites are in Frissell Class Condition Class V which meets the FC-RONR Wilderness requirement of no more than 7 percent. Management actions will be taken to continue to improve the sites that are not meeting plan standards. These rating means there is some minor isolated bank erosion areas present. No substantial erosion problems are known, though opportunities for better foot traffic control, etc., are continually being considered and addressed as soon as possible.

The proposed action indicated the SCNF can take the following course of actions to reduce potential sediment inputs from degraded sites: (1) educate visitors to change behavior or to encourage protection of certain resource attributes at campsites; (2) decrease use in spring and fall to allow for natural green-up and recovery; (3) restore and block certain areas of a campsites with native material barriers; (4) designate kitchen areas, tent sites and social trails; (5) provide appropriate structures when needed to protect the wilderness resource; (6) close campsites as needed; and (7) prohibit the cutting of standing trees for firewood or other purposes. Wilderness standards for sites at Frissell Condition Class IV and V are being met. Management actions will be taken to continue to improve the small number of sites that are exceeding plan standards. The required adherence to these standards has served to reduce sediment inputs and maintain good water quality.

The small size and limited number of sites result in only small, insignificant bank alterations and localized trampling of riparian vegetation at the site scale. These localized alterations are not capable of generating measurable impacts to water quality (turbidity or water temperature), substrate, riparian vegetation, or natural cover in the action area. Therefore, the direct effects of the action on critical habitat are expected to remain insignificant. 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 SR Basin steelhead, SR spring/summer Chinook salmon, and SR sockeye salmon.

3. Data Quality Act Documentation and Pre-Dissemination Review

The Data Quality Act (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 document will be available within 2 weeks at the NOAA Library Institutional Repository (https://repository.library.noaa.gov/welcome). The format and naming adhere to conventional standards for style.

3.2. Integrity

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

3.3. Objectivity

Information Product Category: Natural Resource Plan

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

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion 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. APPENDICES

APPENDIX A

Frissell Campsite Condition Standards As Defined For The FC-RONR Wilderness

Class I	Class II	Class III	Class IV	Class V
Ground vegetation flattened but not permanently injured. Minimal physical change except for possibly a simple rock fireplace.	Ground vegetation worn away around fireplace or center of activity.	Ground vegetation lost on most of the site, but humus and litter still present in all but a few areas.	Bare mineral soil widespread. Tree roots exposed on the surface.	Soil erosion significant (>50% of the area). Trees reduced in vigor or dead.
Land: Site looks natural. No non-native plants. As much firewood as surrounding area. No worn social trails. No tree damage.	Site looks natural with only slight damage to plants. No non-native plants. Less firewood than surrounding area but still abundant. One worn social trail.	Site is less than 50% barren. Few non-native plants. Little tree damage. Little firewood compared to surrounding area. A few worn social trails.	Site is more than 50% barren. Moderate number of non-native plants. Large amount of tree damage. No firewood on site; surrounding area has less firewood than occurs naturally. Many social trails.	Extensive bare area. Non-native plants on most of the site. Extensive tree damage. No firewood on site or surrounding area. Extensive number of social trails and satellite areas.
Stock: Area <100 sq. ft. and often hidden. No tree trunks scarred or mutilated. No dished tree bases. No hay or artificial feed present.	Area >100, <200 sq. ft. Bare soil along hitch line. Minor (<20%) tree trunk scarring and occasional (<20%) dished tree bases. Some trace of feed (<20% of area).	Area >200, <400 sq. ft. Majority (>50%) of tree roots exposed but no circles of radical tree root exposure. Moderate (>20%, <50%) tree trunk scarring. Moderate amounts of manure and artificial feed present (>20%, <50% of area).	Area >400 sq. ft. Only islands of humus/duff. All tree roots exposed somewhat. Most tree trunks scarred. Large amounts of feed & manure (>50%, <80% of area).	Area >400 sq. ft. Bare mineral soil throughout. All tree roots exposed. Many trees dying. Feed & manure over 80% of area.
River: Site looks natural with little or no sign of pullout.	Well-defined pullout with little or no vegetation loss in other areas.	Obvious pullout area and vegetation loss. Organic layer present. No satellite areas. Slight damage to trees and brush on the site.	Multiple, well-worn pullouts and vegetation loss. Satellite sites and trails present.	Obvious bank erosion with several satellite areas and several trails. Extensive human damage to vegetation. No firewood on site or surrounding area.