



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

**Refer to:**  
**2002/00019**

March 6, 2002

Mr. Barron Bail  
District Manager  
BLM - Prineville District  
P.O. Box 550  
3050 NE 3<sup>rd</sup> Street  
Prineville, OR 97754

Re: Endangered Species Action Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of Livestock Grazing Allotments Administered by the Bureau of Land Management in the Lower Deschutes River Subbasin, Oregon for 2002 and 2003

Dear Mr. Bail:

Enclosed is a biological opinion prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of livestock grazing allotments administered by the Bureau of Land Management (BLM) in the Lower Deschutes River subbasin, Oregon. NOAA Fisheries concludes in this biological opinion (Opinion) that the proposed action is not likely to jeopardize the subject species. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are reasonable and appropriate to minimize the impact of incidental take associated with this action.

At the request of the BLM Deschutes Resource Area (DRA), before finalizing this Opinion a draft Opinion was sent to the DRA for review and comment. NOAA Fisheries received comments from the DRA on January 3, 2003, and a conference call to discuss these comments, involving NOAA Fisheries and BLM, occurred on January 22, 2003.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600).



Please direct any questions regarding this consultation to Scott Hoefer of my staff in the Oregon Habitat Branch Office at 503.231.6938.

Sincerely,

*for Michael R Crouse*

D. Robert Lohn  
Regional Administrator

cc: Jeff Dillon, USFWS  
Jennifer O'Reilly, USFWS  
Steve Pribyl, ODFW  
Dan Rife, Ochoco/Deschutes FS

# Endangered Species Act - Section 7 Consultation Biological Opinion

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## Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

Bureau of Land Management Grazing Activities Affecting  
Middle Columbia River Steelhead  
2002 and 2003

Lower Deschutes River Basin

Agency: Bureau of Land Management, Prineville District,  
Deschutes Resource Area

Consultation  
Conducted By: National Marine Fisheries Service,  
Northwest Region

Date Issued: March 6, 2003

Issued by: *f.l. Michael R. Crouse*  
D. Robert Lohn  
Regional Administrator

Refer to: 2002/00019

## TABLE OF CONTENTS

1. INTRODUCTION .....	<u>1</u>
1.1 Background .....	<u>1</u>
1.2 Proposed Action .....	<u>3</u>
1.2.1 Allotment Descriptions .....	<u>6</u>
1.2.2 Allotment Monitoring Summary .....	<u>14</u>
2. ENDANGERED SPECIES ACT .....	<u>14</u>
2.1 Biological Opinion .....	<u>14</u>
2.1.1 Biological Information .....	<u>14</u>
2.1.2 Evaluating Proposed Action .....	<u>16</u>
2.1.2.1 Biological Requirements .....	<u>16</u>
2.1.2.2 Environmental Baseline .....	<u>18</u>
2.1.3 Analysis of Effects .....	<u>27</u>
2.1.3.1 Effects of Proposed Actions .....	<u>27</u>
2.1.3.2 Effects on Habitat .....	<u>30</u>
2.1.3.3 Cumulative Effects .....	<u>32</u>
2.1.4 Conclusion .....	<u>32</u>
2.1.5 Conservation Recommendations .....	<u>33</u>
2.1.6 Reinitiation of Consultation .....	<u>34</u>
2.2 Incidental Take Statement .....	<u>34</u>
2.2.1 Amount or Extent of Take .....	<u>35</u>
2.2.2 Effect of the Take .....	<u>35</u>
2.2.3 Reasonable and Prudent Measures .....	<u>35</u>
2.2.4 Terms and Conditions .....	<u>35</u>
3. MAGNUSON-STEVENSON ACT .....	<u>37</u>
3.1 Background .....	<u>37</u>
3.2 Magnuson-Stevens Fishery Conservation and Management Act .....	<u>38</u>
3.3 Identification of EFH .....	<u>38</u>
3.4 Proposed Action .....	<u>39</u>
3.5 Effects of the Proposed Action .....	<u>39</u>
3.6 Conclusion .....	<u>39</u>
3.7 EFH Conservation Recommendations .....	<u>39</u>
3.8 Supplemental Consultation .....	<u>40</u>
4. LITERATURE CITED .....	<u>41</u>

# 1. INTRODUCTION

## 1.1 Background

On January 23, 2002 the National Marine Fisheries Service (NOAA Fisheries) received a January 8, 2002, letter and final Biological Assessment (BA) from the Bureau of Land Management (BLM), Prineville District, Deschutes Resource Area (DRA) requesting formal consultation regarding the potential effects of their proposed livestock grazing activities for calendar years 2002 and 2003 on the Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) evolutionarily significant unit (ESU). The accompanying BA described ongoing and proposed livestock grazing actions, the environmental baseline, and addressed the effects of those ongoing and proposed livestock grazing actions on MCR steelhead in the Lower Deschutes River basin within the BLM's Deschutes Resource Area. NOAA Fisheries issued a biological opinion (2001 Opinion) for the 2000 and 2001 DRA grazing activities on January 2, 2001, and an amendment on terms and conditions was issued on March 15, 2001. Because the grazing actions on BLM-administered grazing allotments and their effects on MCR steelhead are not expected to change between 2002 and 2003, this biological opinion (Opinion) covers these actions through 2003.

The 2001 end-of-year report was received in late January 2002, and provides pertinent information regarding 2001 grazing activities. The report contained all of the information required by the 2001 Opinion, except actual management information (livestock numbers, and on-off dates). The monitoring report states that livestock numbers were not provided because it is impossible for DRA to know the number of livestock using BLM land, since it makes up a small percentage of each pasture. In lieu of livestock numbers, DRA provided utilization results for 2001. The DRA did not comply with terms and conditions 1.c., 1.d., 1.e., 1.f., 2.e., 2.f, and 2.g. Term and condition 1.c. required the DRA to prioritize the sensitivity of spawning stream reaches to grazing impacts based on Rosgen channel types (Rosgen and Silvey 1998) and the quantity, quality, and concentration of MCR steelhead spawning habitat. The DRA rationale for not implementing term and condition 1.c. is that NOAA Fisheries never provided a methodology. Terms and conditions 1.d. and 1.e. were not implemented because they were dependent on the implementation of term and condition 1.c. When unauthorized or excess use by livestock occurred within stream reaches containing MCR steelhead spawning habitat, term and condition 1.f. required DRA to notify permittees to remove cattle immediately, to notify NOAA Fisheries within 24 hours, and cows were to be removed within two days. The end-of-year report stated that livestock trespass was a continual problem on the Frog Springs Allotment and in Macks Canyon. NOAA Fisheries was not notified when the incidents occurred. Term and condition 2.e. required the development and implementation of a plan to accelerate the recovery rate of aquatic habitat in Buck Hollow Creek because, according to the 2000 BA, aquatic habitat in Buck Hollow Creek was degraded. The DRA stated that they did not implement this term and condition because, in their opinion, the grazing management strategy consulted on does not affect aquatic habitat. Contrary to the description provided in the BA, NOAA Fisheries' staff visited a portion (approximately 3 miles) of Buck Hollow Creek in the Buck Hollow Allotment with BLM staff in April 2001, and found that riparian recovery was

occurring in this area under the current grazing strategy. Term and condition 2.f. required riparian fencing on the W.L. Webb allotment, but according to their monitoring report, DRA did not implement the term and condition due to logistical problems and that in their opinion, this term and condition is not valid because it does not reduce take. In addition to the reasons given in the monitoring report, upon reviewing the draft of this Opinion, DRA stated that they had explained to NOAA Fisheries that these fencing proposals, which were identified in the 1986 Two Rivers Resource Management Plan (USDI 1986)<sup>1</sup>, were made without actually looking at the ground. Term and condition 2.g. contained the requirements for the end-of-year report, with a report date of December 31<sup>st</sup>, but the report was not received until late January. DRA stated this was because NOAA Fisheries was not available for a meeting to clarify what was needed in the report until after the report was due.

Prineville Level 1 team members could not resolve several issues during the early stages of consultation, so the issues were elevated to the Level 2 team. The issues were elevated with a memo from Jimmy Eisner, BLM Fishery Biologist, on May 9, 2002 (attached). The BLM felt that NOAA Fisheries was not providing valid terms and conditions, because some of the terms and conditions themselves did not reduce take. NOAA Fisheries' position was that although some terms and conditions themselves do not reduce take, they play an important role in ultimately reducing take. The BLM was also concerned about the length of time it takes for a draft biological assessment to be accepted for final submission, timelines once a biological assessment is accepted, and consulting on the same projects year after year even though the projects do not change. NOAA Fisheries was concerned with the inadequacy of draft biological assessments and the lack of a functioning Level 1 team for the Prineville District, and that the BLM did not adhere to seven of the 13 terms and conditions provided in the 2001 Opinion.

The Level 2 team met with Level 1 team members on June 24, 2002, to try to resolve these issues. Progress was made regarding the streamlining process. Everyone agreed that using the existing Deschutes/Ochoco Level 1 team as the forum for DRA project Level 1 meetings, linking Level 2 meetings with Central Oregon Executives meetings, NOAA Fisheries providing draft BA comments in written form with examples, and BLM providing utilization data would improve the streamlining process. Regarding the validity of terms and conditions and adherence to terms and conditions no resolution was made. At the meeting, NOAA Fisheries agreed to change the draft term and condition requiring BLM to install a temporary exclusion device around a redd in close proximity to a cattle watering site or stream crossing to a term and condition calling for BLM to organize a Level 1 site visit to determine measures needed to protect a redd found in close proximity to a livestock watering site or stream crossing. After further consideration and internal discussion, NOAA Fisheries considered the original term and condition with some revision to be appropriate in light of the BLM's responsibility as a Federal

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<sup>1</sup> The 1986 Two Rivers Resource Management Plan provided, "[for] 10 to 15 years... a comprehensive framework for managing public lands and allocating resources... where the Bureau of Land Management (BLM) is the administering agency.... [The area covered by this plan] is located in the Central Oregon corridor between the Cascade Mountain Range on the west, and Morrow and Grant counties to the east, in an area north from Crook and Jefferson counties to the Columbia River." (USDI 1986)

agency to conserve threatened species. BLM was not aware of this rewrite until they reviewed the draft of this Opinion. NOAA Fisheries and BLM disagreed about the validity of the term and condition requiring BLM to notify the permittee to remove unauthorized livestock and to notify NOAA Fisheries within 24 hours. BLM agreed to find out the official position from their Washington D.C. office and respond to NOAA Fisheries. The DRA conferred with their Oregon State Office regarding this term and condition. The State Office communicated that the Washington Office Bureau policy is that the term and condition is not valid. NOAA Fisheries believed that the term and condition was valid if it is limited to permitted livestock.

On December 19, 2002, the draft Opinion was sent to the DRA for review and comment, at their request. NOAA Fisheries received comments from the DRA on January 3, 2003, and a conference call to discuss these comments, involving NOAA Fisheries and BLM, occurred on January 22, 2003. As a result of the conference call, the unauthorized livestock term and condition was edited and moved to the conservation recommendations section, because grazing occurring outside of the permit conditions should not receive take coverage through the BLM's Incidental Take Statement. In addition, based on the BLM's position that the current grazing strategy itself minimizes take, and that MCR steelhead redd trampling by livestock has not been observed on public land, reasonable and prudent measure 1 was modified, and a new term and condition was developed requiring more intensive monitoring in order to demonstrate that redds are not being trampled. In addition, a term and condition was added requiring the protection of redds in close proximity to livestock watering sites and stream crossings if redd trampling is observed.

NOAA Fisheries listed the MCR steelhead (*Onchorynchus mykiss*) as threatened under the Endangered Species Act (ESA) on March 25, 1999 (64 FR 14517). NOAA Fisheries issued protective regulations under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this Opinion is to determine whether the subject livestock grazing actions for calendar year 2002 and 2003 are likely to jeopardize the continued existence of MCR steelhead.

## **1.2 Proposed Action**

The BA submitted to NOAA Fisheries describes livestock grazing activities on 22 grazing allotments on BLM lands in the Lower Deschutes River basin. The BLM determined in the BA that activities on all 22 of those range allotments are "may affect, likely to adversely affect" (LAA) actions regarding MCR steelhead. Those LAA actions, which are summarized in Table 1 and individually described below, are the subject of this Opinion.

Livestock grazing in riparian areas on Prineville BLM (Deschutes Resource Area) allotments is currently authorized to occur for some time interval between November 1 and May 1 with most grazing taking place from February to mid-April. Dates of actual livestock turnout and length of grazing season vary between pastures and allotments based on environmental conditions, plant phenology, and limited BLM control in minority ownership situations.

**Table 1.** BLM-Administered Livestock Grazing Allotments, Approximate Location by River Mile, Acres (BLM and Private), Amount of Use Authorized, and Associated Streams Providing MCR Steelhead Spawning and Rearing Habitat.

<b>Allotment (Allotment Number) and Names of Pastures Where MCR Steelhead Habitat May Be Affected*</b>	<b>Approximate RM of Entry to Deschutes River</b>	<b>Acres BLM/Private</b>	<b>Authorized Number of Animal Unit Months (AUMs)</b>	<b>Associated Streams and Rivers (Miles of potential MCR steelhead spawning/rearing habitat on BLM; protective measures in place)</b>
Pat Sharp (7569)** Unnamed	23 (eastside of river)	480/ 1,520	42	Macks Canyon (0.0) (intermittent on BLM land; some potential for downstream effects)
Bird (7501)  Macks Canyon Sixteen Canyon	23 (eastside)	4,737/ 2,770	265	Deschutes River (4.0, fenced to exclude cattle) Macks Canyon (1.6) Sixteen Canyon (Both intermittent on BLM land)
Ferry Canyon (7547) River Riparian	25 (westside)	4,782/ 1,340	226	Deschutes River (3.5) Ferry Canyon (1.5)
Reckman, J.P. (7564) Cedar Island Sinamox  Jones	30 (eastside)	3,194/7,835	198	Deschutes River Deschutes River (12.5 miles total for both pastures; riparian pasture fences) Jones Creek (0.25)
Oak Canyon (7562)**  Oak Canyon	35 (westside)	4,068/ 4,802	324	Deschutes River (11.0; fenced to exclude cattle) Oakbrook Creek (0.75)
Buck Hollow (7558)** Creek	43 (eastside)	1,028/ 5,140	131	Buck Hollow Creek (2.2)
Conley (7510)** Unnamed	43 (eastside)	120/ 5000	27	Buck Hollow Creek (0.25)
Ashley (7588)** Creek	43 (eastside)	314/ 2101	35	Buck Hollow Creek (1.0)
Holmes (7539)** Creek	43 (eastside)	314/ 2101	80	Buck Hollow Creek (0.25)
Webb, W.L. (7579) River	43 (eastside)	2,978/ 4,467	242	Deschutes River (7.0) Buck Hollow Creek (0.75)

<b>Allotment (Allotment Number) and Names of Pastures Where MCR Steelhead Habitat May Be Affected*</b>	<b>Approximate RM of Entry to Deschutes River</b>	<b>Acres BLM/Private</b>	<b>Authorized Number of Animal Unit Months (AUMs)</b>	<b>Associated Streams and Rivers (Miles of potential MCR steelhead spawning/rearing habitat on BLM; protective measures in place)</b>
Connolly (7511) Boxcar, Oak Springs, Handicap, Sherars	48 (eastside)	2,494/ 30,225	373	Deschutes River (3.5; riparian pasture fences)
Woodside, H. (7584) Unnamed	50 (westside)	105/ 158	11	Deschutes River (1.0)
Lindley (7548)** Deep Creek Salt Creek	52 (eastside)	595/ 1,040	41	Deep Creek (1.1) Salt Creek (0.0) (Intermittent on BLM)
Conroy, P.J. (7512)** Unnamed	52 (eastside)	440/ 6,400	45	Deep Creek (0.7), Cottonwood Creek (0.9)
Morelli (7553)**  Wapinitia	55 (westside)	647/ 725	12	Deschutes River (0.8; fenced to exclude cattle), Wapinitia Creek (0.2)
Criterion (7583) Two Springs Windy Flat	60 (eastside)	12,000/None	Not Yet Established	Deschutes River (6.5 total for two pastures; fenced to exclude cattle except for three watergaps)
Forman, C. (7526)** Unnamed	87 (eastside)	400/ 2,640	38	Trout Creek (0.5)
Nartz (7546)** Unnamed	87 (eastside)	80/ 200	12	Trout Creek (0.4)
Priday, J. (7560)** Unnamed	87 (eastside)	1,280/ 4,380	100	Trout Creek (1.0)
Delude (7518) Trout Creek, North, Mecca	85 and 93 (eastside)	1,210/ 940	76	Deschutes River (5.0 total for three pastures; 50% fenced to exclude cattle)
Ward Creek (7525)** Unnamed	87 (eastside)	160/ 160	8	Ward Creek (0.25)
Frog Springs (7551) West, East	90 (eastside)	883/ 1,202	127	Deschutes River (3.5)

\*\* This is a group 4 allotment defined in Appendix E of the “2000 Grazing Implementation Module” as “small, isolated pasture/use areas that may affect aquatic resources addressed by PACFISH/INFISH but cannot be managed effectively due to lack of access by BLM.

According to the BA, monitoring frequencies are generally once every five years for riparian transects and nested frequency studies, once every ten years for general photopoints, and either every year or every other year for utilization of key species determinations. Data is not interpreted until the allotment is evaluated. Currently, the Prineville District is reevaluating allotments under the Rangeland Health Initiative, and all allotments are required to be completed by 2008. Allotment evaluations are available as they are completed, and copies of the raw field data are available. The BA states that professional observations to date show an upward trend on allotments with the exception of streams with recent fire events. The monitoring activities described below for each individual allotment are in addition to the monitoring required by the “2000 Grazing Implementation Monitoring Module” for selected allotments. Even though most allotments located on Deschutes River tributary streams are considered to be “scattered tracts” because of the lack of BLM access across private lands, monitoring does occur on these allotments as described below. According to an October 24, 2000, e-mail from Jimmy Eisner, BLM Deschutes Resource Area Fishery Biologist, and a January 7, 2002, phone call with him, actual-use data is available on some allotments, but because many of the BLM parcels are small and surrounded by private lands, the data are of very limited use in indicating what is happening with respect to actual numbers of cattle using a given parcel of BLM rangeland.

### **1.2.1 Allotment Descriptions**

#### Pat Sharp Allotment

The Pat Sharp Allotment (7569) contains 480 acres of BLM land and 1,520 acres of private land. The BLM portion of this allotment contains a total of 0.15 miles of intermittent stream. There are no range improvements on the BLM land in this allotment. Grazing on BLM land in this allotment is authorized for a total of 42 Animal Unit Months (AUMs). According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. Monitoring on this allotment consists of a single photopoint.

#### Bird Allotment

The Bird Allotment (7501) contains 4,737 acres of BLM land and 2,770 acres of private land. The BLM portion of this allotment borders the east side of the mainstem Deschutes River for 4.0 miles, and also contains a total of 5.7 miles of three intermittent drainages (Allison, Macks, and Sixteen Canyons). This reach of the Deschutes River serves primarily as a migration corridor for MCR steelhead, since it is downstream from the White River, which enters the Deschutes near River Mile (RM) 47 (based on past spawning surveys, 95% of the steelhead spawning in the mainstem Deschutes River occur upstream from White River, and 5% occur downstream from the White River). MCR steelhead are known to spawn in Macks Canyon during high water years. Macks Canyon enters the Deschutes River near RM 23. The Deschutes River in this allotment has been excluded from grazing since the 1980s by a fence constructed in cooperation with Oregon Department of Fish and Wildlife (ODFW). The mouth of Macks Canyon has been fenced to exclude livestock since 1993, and the watergap on Sixteen Canyon has been closed since 1995. Springs in the North and Sixteen Canyon pastures have been developed as off-channel watering sites for livestock. Areas impacted by past season-long use and by a 1994 fire

were reseeded with grasses in 1995. The area along Macks Canyon has been rested for the past six years. Riparian pastures are grazed in the spring prior to May 1.

Grazing on BLM land in this allotment is authorized for a total of 265 AUMs. According to the BA, monitoring on the Bird Allotment consists of: (1) Riparian photopoints (photos taken every 10 years) established in 1990, at quarter-mile intervals along Macks Canyon and Sixteen Canyon; (2) photopoints (photos taken every 10 years) established in 1991, at each of the developed spring sites; (3) utilization of key forage species conducted every other year at three sites along Macks Canyon and Sixteen Canyon; (4) continuous water temperature monitoring stations (Hobos) established in 1993, in Macks Canyon and Sixteen Canyon; (5) riparian transects established in 1994, along Macks Canyon and Sixteen Canyon; and, (6) a nested frequency<sup>2</sup> study plot.

#### Ferry Canyon Allotment

The Ferry Canyon Allotment (7547) contains 4,782 acres of BLM land and 1,340 acres of private land. The BLM portion of this allotment borders the west side of the mainstem Deschutes River for 3.5 miles, and also contains a total of 1.5 miles of intermittent stream (Ferry Canyon). Ferry Canyon enters the Deschutes River from the west near RM 24.6. This reach of the Deschutes River serves mainly as a migration corridor for MCR steelhead, since it is downstream from the White River. Ferry Canyon may provide spawning habitat for MCR steelhead during high water years. Range improvements on this allotment include a fence constructed along the lower 0.5 mile of Ferry Canyon in 1993, to exclude livestock and development of three springs as off-channel water sources for livestock. Upper Ferry Canyon is inaccessible to livestock because of steep canyon walls. Grazing has not been authorized on BLM-administered lands along the Deschutes River in this allotment since 1994. Grazing on BLM land in this allotment is authorized for a total of 226 AUMs. According to the BA, monitoring on this allotment consists of: (1) Three photopoints; (2) two nested frequency study areas; (3) a riparian transect along Ferry Canyon; (4) utilization of key forage species study annually along Ferry Canyon; and (5) a continuous water temperature monitoring station established in Ferry Canyon in 1994.

#### J.P. Reckman Allotment

The J.P. Reckman Allotment (7564) contains 3,194 acres of BLM land and 7,835 acres of private land. The BLM portion of this allotment borders the east side of the mainstem Deschutes River for 12.5 miles, and also contains a total of 2.0 miles of intermittent streams (Jones, Gert, Rattlesnake, and Box Elder Canyons). Jones Canyon and Rattlesnake Canyon have potential for steelhead use during high water years. Gert Canyon and Box Elder Canyon have no potential for steelhead use due to low stream flows and steep Gradient. Rattlesnake Canyon enters the Deschutes River near RM 30. This reach of the Deschutes River serves mainly as a migration corridor for MCR steelhead since it is downstream from White River. Range improvements on

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<sup>2</sup> A nested frequency study is done to determine the frequency of occurrence of plant species in an area and changes in that frequency over time. A series of 3x3-foot grids is established at 200 points within an allotment and the different plant species identified in portions of those grids. These studies are usually repeated at 5-year intervals.

this allotment consist of: (1) Installation of a cattle guard on the road to Beavertail Campground; (2) development of a spring in Gert Canyon; and (3) grass seeding to help rehabilitate the area burned in a 1994 fire. Grazing on BLM land in this allotment is authorized for a total of 198 AUMs and is rotated among six pastures (two along the Deschutes River). Monitoring on this allotment consists of: (1) Three photopoints where photos are taken every 10 years; (2) one nested frequency study area; (3) a riparian transect along the Deschutes River; and (4) utilization of key forage species conducted every other year at four sites.

#### Oak Canyon Allotment

The Oak Canyon Allotment (7562) contains 4,068 acres of BLM land and 4,802 acres of private land. The BLM portion of this allotment borders the west side of the mainstem Deschutes River for 11.0 miles, and also contains a total of 0.75 miles of intermittent stream (Oak Canyon). Oak Canyon enters the Deschutes River from the west near RM 35, and provides steelhead spawning and rearing habitat. This reach of the Deschutes River serves mainly as a migration corridor for MCR steelhead since it is downstream from White River. A fence along the railroad track precludes livestock access to the Deschutes River in this allotment. Range improvements on this allotment consist of: (1) A riparian pasture created along lower Oak Canyon in 1994, which is grazed in early spring; and (2) development of three springs in 1993, in which springs are fenced and water is piped to a trough away from the spring, and excess water is piped back to the spring. Grazing on BLM land in this allotment is authorized for a total of 324 AUMs.

According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) Two photopoints; (2) a riparian transect established in 1995, along Oakbrook Creek; (3) a nested frequency study established in 1987, and repeated in 1994; and (4) utilization of key forage species data collected in seven of last nine years.

#### Buck Hollow Allotment

The Buck Hollow Allotment (7558) contains 1,028 acres of BLM land and 5,140 acres of private land. There are a total of 2.2 miles of perennial stream (Buck Hollow Creek) and 1.0 miles of intermittent streams on BLM land in this allotment. Buck Hollow Creek provides spawning and rearing habitat for MCR steelhead. Riparian areas on BLM land along Buck Hollow Creek are fenced. The riparian pasture, when grazed, is used in the spring prior to May 1. Range improvements on this allotment include some gap fencing along the south rim of the Buck Hollow Creek canyon downstream from Bauman Draw. Grazing on BLM land in this allotment is authorized for a total of 131 AUMs. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) A single photopoint established in 1988; and (2) a riparian transect along Buck Hollow Creek established in 1994.

#### Conley Allotment

The Conley Allotment (7510) contains 120 acres of BLM land (consisting of three scattered 40-acre tracts) and 5,000 acres of private land. There are 0.25 miles of perennial stream (Buck

Hollow Creek) and 0.25 miles of intermittent stream (Karlen Draw) on BLM land in this allotment. Both provide habitat for MCR steelhead. There are no range improvements on BLM land in this allotment. Grazing on BLM land in this allotment is authorized for a total of 27 AUMs. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, no livestock use has been authorized on this allotment in recent years, and none appears to have occurred. Monitoring on this allotment consists of a single photopoint established in Karlen Draw in 1989.

#### Ashley Allotment

The Ashley Allotment (7588) contains 314 acres of BLM land and 2,101 acres of private land. There are a total of 1.0 miles of perennial stream (Buck Hollow Creek) and no intermittent streams on or adjacent to BLM land in this allotment. Buck Hollow Creek, which enters the Deschutes River near RM 43, provides spawning and rearing habitat for MCR steelhead. Grazing on BLM land in this allotment is authorized for a total of 35 AUMs. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, very little actual use has occurred on the BLM lands along Buck Hollow Creek since 1994. The lessee on this allotment is participating in the Buck Hollow Watershed Enhancement Plan which is a cooperative effort involving Federal and state agencies, and private landowners to improve fisheries habitat in Buck Hollow Creek. Currently, there are no range improvements on BLM lands in this allotment. According to the BA, monitoring on this allotment consists of: (1) A single photopoint established in 1989; and (2) a riparian transect along Buck Hollow Creek.

#### Holmes Allotment

The Holmes Allotment (7539) contains 314 acres of BLM land and 2,101 acres of private land. The BLM portion of this allotment contains 0.25 miles of perennial stream (Buck Hollow Creek), and 0.75 miles of intermittent stream (Bronx and Finnegan Canyons). Buck Hollow Creek provides spawning and rearing habitat for MCR steelhead. There is one developed spring on this allotment. Grazing on BLM land in this allotment is authorized for a total of 80 AUMs between November 1 and May 1. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA monitoring on this allotment consists of:

(1) A photopoint established in 1988, and repeated in 1995; and (2) a riparian transect on Buck Hollow Creek.

#### W.L. Webb Allotment

The W.L. Webb Allotment (7579) contains 2,978 acres of BLM land in several separate blocks ranging from 40 to 640 acres, and 4,467 acres of private land. The BLM portion of this allotment contains a total of 0.75 miles of perennial stream (Buck Hollow Creek), and 5.7 miles of intermittent streams. Buck Hollow Creek provides spawning and rearing habitat for MCR steelhead. There are no range improvements on BLM lands in this allotment. Grazing on BLM

land in this allotment is authorized for a total of 242 AUMs and occurs in the spring. According to the BA, monitoring on this allotment consists of: (1) Two photopoints established in 1987, and repeated in 1996; (2) a riparian transect established along Buck Hollow Creek in 1994, and repeated in 1996; and (3) a riparian inventory conducted in 1980, and not repeated.

#### Connolly Allotment

The Connolly Allotment (7511) contains 2,494 acres of BLM land and 30,225 acres of private land. The BLM portion of this allotment borders the east side of the mainstem Deschutes River for 3.5 miles. Range improvements on this allotment consist of four miles of fencing installed in 1987, to create three riparian pastures on BLM land along the river, downstream from Maupin, Oregon. Grazing usually occurs between January and April. This reach of the Deschutes River serves mainly as a migration corridor for MCR steelhead, since it is mostly downstream from White River. Grazing on BLM land in this allotment is authorized for a total of 373 AUMs. According to the BA, monitoring on the Connolly Allotment consists of: (1) Two photopoints, one established in 1985, and retaken in 1990, and 1995, and one established in 1987, and retaken in 1994; (2) utilization of key forage species conducted every other year at four sites along the Deschutes River which are measured every other year; (3) a riparian transect established in 1995, along the Deschutes River; and (4) a nested frequency study plot.

#### H. Woodside Allotment

The H. Woodside Allotment (7584) contains 105 acres of BLM land in two pastures and 158 acres of private land. The BLM portion of this allotment borders the west side of the mainstem Deschutes River for 1.0 mile. The river pasture is separated from the upland pasture by a fence along the railroad tracks. This reach of the Deschutes River serves as a migration corridor for MCR steelhead. There are no range improvements on BLM land in this allotment. Grazing on BLM land in this allotment is authorized for a total of 11 AUMs. According to the BA, monitoring on this allotment consists of one photopoint and a riparian transect.

#### Lindley Allotment

The Lindley Allotment (7548) contains a total of 595 acres of BLM land on two separate tracts and 1,040 acres of private land. The BLM portion of this allotment contains 1.1 miles of perennial stream (Deep Creek), and 1.0 mile of intermittent stream (Salt Springs Canyon). Deep Creek provides spawning and rearing habitat for MCR steelhead. The only range improvement on this allotment is a riparian pasture fence constructed in 1995, in cooperation with ODFW. Grazing on BLM land in this allotment is authorized for a total of 41 AUMs. According to the definition provided in Appendix E of the "2000 Grazing Implementation Monitoring Module," BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) A photopoint established in 1988, and retaken in 1994; (2) a riparian transect along Deep Creek; and (3) a continuous water temperature monitoring station established in Deep Creek in 1994.

### P.J. Conroy Allotment

The P.J. Conroy Allotment (7512) contains 440 acres of BLM land and 6,400 acres of private land. The BLM portion of this allotment is composed of five scattered tracts containing a total of 1.57 miles of perennial streams (Deep Creek and Cottonwood Creek) which provide spawning and rearing habitat for MCR steelhead. Cottonwood Creek is a tributary to Deep Creek which is a tributary to Bakeoven Creek. Bakeoven Creek enters the Deschutes River near RM 52. There are no range improvements on BLM land in this allotment. Grazing on BLM land in this allotment is authorized for a total of 45 AUMs. In recent years, grazing has occurred in winter and early spring. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) A single photo point established in 1988, and retaken in 1995; and (2) a continuous water temperature monitoring station in Deep Creek downstream from the allotment.

### Morelli Allotment

The Morelli Allotment (7553) contains 647 acres of BLM land and approximately 725 acres of private land. The BLM portion of this allotment borders the west side of the mainstem Deschutes River for 0.8 miles and also contains approximately 0.2 miles of Wapinitia Creek. This reach of the Deschutes River provides some spawning and rearing habitat for MCR steelhead, since it is upstream from White River. Range improvements on this allotment include: (1) A fence which precludes livestock access to the Deschutes River; (2) one developed spring; (3) approximately 0.5 mile of fence along Wapinitia Creek; and (4) gap fences at several locations along the canyon rims of the Deschutes River and Wapinitia Creek. Wapinitia Creek provides rearing and migratory habitat. There are three pastures in this allotment, with about a month of use occurring in each pasture. Grazing on BLM land in this allotment is authorized for a total of 12 AUMs. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA monitoring on this allotment consists of: (1) A single upland photopoint established in 1988, and not repeated since; (2) a continuous water temperature recording established in Wapinitia Creek in 1994; and (3) upstream and downstream photopoints every 0.25 mile along Wapinitia Creek in 1980, but not repeated since.

### Criterion Allotment

The Criterion Allotment (7583) contains 12,000 acres of BLM land and no private land. The land was acquired by the BLM in 1996, and grazing has been greatly reduced since that time with the current system providing rest for approximately half the allotment every other year. This allotment borders the east side of the mainstem Deschutes River for 6.5 miles. Livestock access to the river has been excluded, except for three water gaps, since the 1980s. This reach of the Deschutes River provides some spawning and rearing habitat for MCR steelhead, since it is upstream from White River. River-accessible pastures are grazed every other year. Range improvements on this allotment include: (1) Four stock ponds in the Devils Canyon Pasture; (2) five stock ponds and two developed springs in the El Toro/Pond Pasture; (3) three stock ponds in the Deer Pasture; and (4) seven stock ponds and one developed spring in the Two Springs Pasture. A specified number of AUMs has not yet been established for this allotment

since it was just acquired by the BLM in 1996, however, as a general rule, about 20-25 acres are required to produce one (Jim Eisner, BLM Deschutes Resource Area Fishery Biologist, personal communication, July 28, 2000). According to the BA, monitoring on the Criterion Allotment consists of: (1) Four photopoints established in 1997; (2) utilization of key forage species conducted every year along the Deschutes River which are measured every year; (3) a riparian transect along the Deschutes River; and (4) three nested frequency study areas.

#### Forman Allotment

The C. Forman Allotment (7526) contains 400 acres of BLM land and 2,640 acres of private land. The BLM portion of this allotment contains a total of 0.5 miles of perennial stream (Trout Creek) in two segments, and no intermittent streams. Trout Creek enters the Deschutes River from the east near RM 87. Trout Creek provides spawning and rearing habitat for MCR steelhead. There are no range improvements on BLM lands in this allotment. Grazing on BLM land in this allotment is authorized for a total of 38 AUMs, and usually occurs in the fall. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotments consists of one photopoint established in 1988, and repeated in 1994.

#### Nartz Allotment

The Nartz Allotment (7546) contains 80 acres of BLM land and 200 acres of private land. The BLM portion of this allotment contains 0.4 miles of perennial stream (Trout Creek), and no intermittent stream. Trout Creek provides spawning and rearing habitat for MCR steelhead. There are no range improvements on BLM land in this allotment. Grazing on BLM land in this allotment is authorized for a total of 12 AUMs, and has occurred in early spring for the past seven years. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) A single upland photopoint established in 1988, and not repeated since; (2) a continuous water temperature recording established in Wapiniatia Creek in 1994; and (3) upstream and downstream photopoints every 0.25 miles along Wapiniatia Creek in 1980, but not repeated since.

#### J. Priday Allotment

The J. Priday Allotment (7560) contains 1,280 acres of BLM land and 4,380 acres of private land. The BLM portion of this allotment contains 1.2 miles of perennial stream (Trout Creek), and 1.4 miles of intermittent stream. Trout Creek provides spawning and rearing habitat for MCR steelhead. There are no range improvements on the BLM portion of this allotment. Grazing on BLM land in this allotment is authorized for a total of 100 AUMs, and usually occurs in the spring. According to the definition provided in Appendix E of the “2000 Grazing Implementation Monitoring Module,” BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) A single upland photopoint established in 1988, and repeated in 1996; (2) a continuous water temperature recording established in Trout Creek in 1994; and (3) upstream and downstream photopoints every 0.25 miles along Trout Creek in 1980, but not repeated since.

### Delude Allotment

The Delude Allotment (7518) contains 1,210 acres of BLM land and 940 acres of private land. The BLM portion of this allotment borders the east side of the mainstem Deschutes River for 5.0 miles. The Mecca Flat pasture is grazed from November through January and the Trout Creek pasture from March through April. The third pasture is an upland pasture. This reach of the Deschutes River provides some spawning and rearing habitat for MCR steelhead, since it is upstream from White River. Range improvements on this allotment include: (1) Approximately 42 acres of the Mecca Flat area in this allotment has been excluded from grazing by a fence constructed in cooperation with ODFW and Oregon Trout, since the 1980s; (2) approximately 23 acres in the Trout Creek Campground area are excluded from grazing by a fence constructed in 1990; and (3) one upland spring in the North Pasture was developed as a livestock watering source in 1998. Grazing on BLM land in this allotment is authorized for a total of 76 AUMs. According to the BA, monitoring on this allotment consists of: (1) Three photopoints; (2) a nested frequency study plot; (3) utilization of key forage species conducted every other year at two locations along the Deschutes River; and (4) riparian transects at two locations along the Deschutes River.

### Ward Creek Allotment

The Ward Creek Allotment (7525) contains 160 acres of BLM land and 160 acres of private land. The BLM portion of this allotment contains a total of 0.25 miles of perennial stream (Ward Creek), and no intermittent streams. Ward Creek is a tributary to Trout Creek. Ward Creek provides spawning and rearing habitat for MCR steelhead. Grazing has not been authorized on BLM lands in this allotment for five years, however, unauthorized livestock trailing down Ward Creek has resulted in heavy use of woody and herbaceous vegetation in the riparian area. According to the BA, the lessee intends to rest the allotment from grazing until riparian recovery can occur. There are currently no range improvements on BLM lands in this allotment, however, a fence to exclude livestock from the riparian area along Ward Creek has been approved by BLM pending completion of the environmental review process. Grazing on BLM land in this allotment is authorized for a total of 8 AUMs. According to the definition provided in Appendix E of the "2000 Grazing Implementation Monitoring Module," BLM lands on this allotment are considered as Group 4 scattered tracts. According to the BA, monitoring on this allotment consists of: (1) A single photopoint established in 1995; (2) a riparian transect established along Ward Creek in 1994; and (3) a continuous recording water temperature station established in Ward Creek in 1994.

### Frog Springs Allotment

The Frog Springs Allotment (7551) contains 883 acres of BLM land and 1,202 acres of private land. The BLM portion of this allotment borders the east side of the mainstem Deschutes River for 3.5 miles. This reach of the Deschutes River provides some spawning and rearing habitat for MCR steelhead, since it is upstream from White River. Frog Springs was excluded from

livestock grazing by a fence constructed in the early 1990s. Grazing on BLM land in this allotment is authorized for a total of 127 AUMs and usually occurs in March and April. According to the BA, monitoring on this allotment consists of: (1) A sequence of riparian photopoints along the Deschutes River; (2) a riparian transect along the Deschutes River; and (3) utilization of key species study plots.

### **1.2.2 Allotment Monitoring Summary**

A March 9, 2000, USFS/BLM memorandum, from the Agency Regional Executives, transmitted the “2000 Grazing Implementation Monitoring Module” to the Prineville BLM District and other BLM Districts and National Forests in Oregon. The DRA of the Prineville BLM District did not conduct implementation monitoring, because grazing ended before the initiation of riparian growth. Effectiveness monitoring, also a part of the grazing monitoring module, began in selected allotments in 2001, and will continue in 2002 and 2003. Monitoring is expected to continue in accordance with the module protocol.

The DRA of the Prineville BLM District is within the area covered by PACFISH<sup>3</sup> (USDA and USDI 1994), therefore, all agency activities are required to be consistent with their Resource Management Plan (RMP) as modified by PACFISH. The broadscale consultation to address the RMP after the MCR listing has not been completed. As such, NOAA Fisheries required, through the 2001 Opinion on Prineville District grazing activities (2001 Opinion), that activities shall also be consistent with the requirements of NOAA Fisheries’ June 22, 1998, biological opinion, “Section 7 Consultation on the Effects of Continued Implementation of Land and Resource Management Plans on Endangered Species Act Listed Salmon and Steelhead in the Upper Columbia and Snake River Basins” (1998 Opinion).

## **2. ENDANGERED SPECIES ACT**

### **2.1 Biological Opinion**

#### **2.1.1 Biological Information**

The listing status and biological information for MCR steelhead are described in Busby *et al.* (1996) and NOAA Fisheries (1997). NOAA Fisheries applied protective regulations under section 4(d) of the ESA on July 10, 2000 (65 FR 42423).

Spawning and rearing areas for MCR steelhead on BLM lands, documented in the BA include various locations along the mainstem Deschutes River, in several tributaries (Bakeoven, Buck Hollow, Bull Run Canyon, Cove, Cottonwood, Deep, Fall Canyon, Ferry Canyon, Jones Canyon,

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<sup>3</sup> U.S. Department of Agriculture (USDA) and U.S. Department of Interior (USDI). Environmental Assessment for Implementation of Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH) (March, 1994).

Macks Canyon, Nena, Oak Canyon, Sixteen Canyon, Tenmile, and Trout Creeks), and in the lower two miles of White River. MCR steelhead also incubate, feed, and migrate in these waters. MCR steelhead are suspected but not confirmed to spawn in Ward Creek. Historically, MCR steelhead are thought to have spawned in Bronx Canyon. Based on limited spawning ground counts in the mainstem Deschutes and tributaries, it is believed that mainstem spawning accounts for up to 85% and tributary spawning 15% of natural production in the Deschutes River basin (memorandum from Jim Newton, Oregon Department of Fish and Wildlife, August 11, 1999).

According to the BA, MCR steelhead spawn in the mainstem Deschutes River and west side tributaries of the Deschutes River from March through June; while spawning in the east side tributaries can occur from late-January through mid-April. ODFW (1997) citing Olsen *et al.* (1991) states that spawning in eastside tributaries may have evolved to an earlier time than westside tributaries or the mainstem because stream flow tends to decrease earlier in the more arid eastside streams. Fry emergence timing depends on time of spawning and water temperature during egg incubation, but usually occurs from late May through June. The ODFW guidelines for the timing of in-water work lists February 1- March 15 as the preferred in-water work period for the mainstem Deschutes River downstream from Pelton Dam, and July 1- October 31 as the preferred in-water work period for White River and Buck Hollow, Bakeoven, and Trout Creeks (ODFW 2000). The preferred work period in the mainstem Deschutes is intended to protect fall chinook salmon and resident rainbow trout in addition to MCR steelhead.

Those MCR steelhead that spawn in the mainstem Deschutes River typically spawn near the downstream ends of islands or on the shallow water side between the island and the streambank. The mean water depth at which 28 MCR steelhead redds were located in the mainstem Deschutes River was 54.1 centimeters, mean water velocity over those redds was 71.4 centimeter/second, and mean gravel size in which the redds were constructed was 32.5 mm in diameter (Zimmerman and Reeves 1998). Zimmerman and Reeves (2000) found that steelhead and resident redband segregate spawning habitat in the Deschutes. There was a slight overlap in time of year spawning occurred, but steelhead spawned in deeper water with larger substrate at night while redband spawned in shallower water with smaller substrate during the day. By analyzing otolith microchemistry, they also determined that all steelhead sampled in the Deschutes were progeny of steelhead females, and all resident redbands were progeny of resident females. BLM personnel have stated in the past that determining specific locations of steelhead redds in most sections of the mainstem Deschutes River is difficult or impossible during most years, because of high flows and turbidity when steelhead are spawning<sup>4</sup>. As a requirement of the 2001 Opinion addressing the Prineville BLM grazing program, BLM personnel attempted to collect information regarding MCR steelhead redd locations in the mainstem Deschutes River during the spring of 2001 by doing surveys from a boat, walking along the banks, and overlooking potential spawning areas from adjacent hillsides. They found that the ability to

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<sup>4</sup> Telephone Conversation between Ron Lindland, NOAA Fisheries, and Jim Eisner, Fishery Biologist, BLM (June 22, 1999).

count redds using these methods was poor due to high water and associated riparian vegetation. The ODFW has found similar results over the years<sup>5</sup>.

Juvenile MCR steelhead rear throughout the mainstem Deschutes downstream from Pelton Reregulating Dam. They utilize streamside vegetation as well as stream substrate and other instream structure as cover. Sampling (electrofishing) conducted by Zimmerman and Reeves (1999) in the mainstem Deschutes River found that resident rainbow trout fry (young-of-the-year) outnumbered steelhead fry by a proportion of approximately 9.5 to 1. The proportion of Age 1+ and older juvenile resident rainbow trout to juvenile steelhead was approximately 9 to 1.

### **2.1.2 Evaluating Proposed Action**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the: (1) Definition of the biological requirements and current status of the listed species; and (2) evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For livestock grazing actions, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the actions. NOAA Fisheries' habitat analysis considers the extent to which the proposed action impairs the function of habitat elements necessary for juvenile and adult migration, spawning, and rearing of the MCR steelhead under the existing environmental baseline.

#### **2.1.2.1 Biological Requirements**

To fully consider the current status of the listed species (50 CFR Section 402.14(g)(2)), NOAA Fisheries evaluates the species-level biological requirements of a species, subspecies or a distinct population segment level. For Pacific salmonids, NOAA Fisheries evaluates species level biological requirements as they relate to the distinct population segment level, or ESU. The biological requirements and the status of listed species are evaluated at both the ESU level and

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<sup>5</sup> Telephone Conversation between Scott Hoefer, NOAA Fisheries, and Steve Pribyl, District Fishery Biologist, ODFW (June 7, 2002).

the action area level, and may be described in a number of different ways. For example, biological requirements can be expressed in terms of population viability using such variables as the ratio of recruits to spawners, a survival rate for a given life stage, a positive population trend, or a threshold population size. Biological requirements can also be described as the habitat conditions necessary to ensure the species' continued existence, and these can be expressed in terms of physical, chemical, and biological parameters (NOAA Fisheries 1999). These are briefly described below.

#### Population Viability

Since 1995, NOAA Fisheries has employed the viable salmonid population (VSP) concept as a tool to evaluate whether the species level biological requirements of ESUs are being met. VSPs are independent populations that have a negligible risk of extinction due to threats from demographic variation (random or directional), local environmental variation, and genetic diversity changes (random or directional) over 100 years (McElhany *et al.* 2000).

The attributes associated with VSPs include adequate abundance, productivity, population growth rate, population spatial scale, and diversity. These attributes are influenced by survival, behavior, and experiences throughout the entire life cycle and are therefore distinguished from the more specific biological requirements associated with the action area and the particular action under consideration. Species-level biological requirements are influenced by all actions affecting the species throughout its life cycle and may be broader than the requirements of any specific independent population in the ESU. The action area effects must be reviewed in the context of these species-level biological requirements to evaluate the potential for survival and recovery, relevant to the status of the species and given the comprehensive set of human activities and environmental conditions affecting the species. Recent information reviewed by NOAA Fisheries indicates that the species level biological requirements are not being met in any of the ESUs studied for 12 species of listed salmonids in the Columbia-Snake River basins (NOAA Fisheries 2000). Given the low abundance levels in these ESUs, population growth rates must increase to reach the critical threshold or recovery abundance levels, and in the long term, must remain high enough to maintain a stable return rate and keep populations at acceptable abundance levels (NOAA Fisheries 2000).

#### Habitat Elements

Habitat-altering actions continue to affect salmon and steelhead population viability by affecting the physical, chemical, and biological parameters central to salmon survival in freshwater ecosystems (NOAA Fisheries 1999). For actions that affect freshwater habitat, NOAA Fisheries defines the biological requirements of the species in terms of a concept called properly function condition (PFC). Proper functioning condition is the sustained presence of natural habitat forming processes in a watershed that are necessary for the long-term survival and recovery of MCR steelhead through the full range of environmental variation. Natural habitat-forming processes include, but are not limited to, bedload transport, large woody debris recruitment, and riparian vegetation succession, and most of these processes are driven by water. PFC constitutes the habitat component of a species' biological requirements.

However species' biological requirements are expressed-whether in terms of population variables or habitat components-there is a strong causal link between the two (NOAA Fisheries 1996). Actions that affect habitat have the potential to effect population abundance, productivity and diversity, and these impacts can be particularly acute when populations are at low levels. The importance of this relationship is highlighted by the fact that freshwater habitat degradation is identified as a factor for decline in every salmon listing on the West Coast (NOAA Fisheries 1996). With respect to the analysis of Federal actions on listed species, by analyzing the effects of a given action on the habitat portion of a species biological requirements, NOAA Fisheries is able to gauge how that action will affect the population variables that constitute the rest of a species' biological requirements, and ultimately, how the action will affect the species' current and future health.

#### **2.1.2.2 Environmental Baseline**

The environmental baseline is an analysis of the effects of past and present human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The "action area" for this consultation, therefore, includes the mainstem Deschutes River from Pelton Reregulating Dam downstream to its mouth and all tributaries in that reach which flow through or adjacent to BLM land. The Lower Deschutes River subbasin (downstream from Pelton Dam) covers approximately 2,700 square miles (ODFW 1997). This is equal to approximately 1,728,000 acres. BLM lands on the 26 livestock grazing allotments addressed in this Opinion total approximately 43,350 acres or 2.5% of the total subbasin area. Table 2 summarizes streams, MCR steelhead use, riparian condition, monitoring results, and 303(d) listings by allotment.

The current range-wide population status and trends for MCR steelhead are described in Busby *et al.* (1996) and in NOAA Fisheries (1997). ODFW (1997) listed the Pelton/Round Butte hydroelectric complex, low summer flows and high water temperatures in tributary streams, and stream bank degradation as production constraints on MCR steelhead in the Lower Deschutes River. Sedimentation (resulting mainly from glacial flour from Mount Hood glaciers) in the mainstem Deschutes downstream from White River (River Mile 47) could cause spawning gravel for MCR steelhead to become less suitable and could negatively impact aquatic insect production, decreasing juvenile salmonid production potential.

**Table 2.** BLM-Administered Livestock Grazing Allotments in the Lower Deschutes addressed in this Opinion, Streams Providing MCR Steelhead Habitat on BLM Lands Within Each Allotment, MCR Steelhead Use, Riparian Condition, Monitoring Results, and 303(d) List.<sup>6</sup>

Allotment	Streams	MCR Steelhead Use	Riparian Condition	Monitoring Results	303(d) List?
Pat Sharp (7569)	Unnamed	none	fair	none	no
Bird (7501)	Deschutes River, Macks Canyon, & Sixteen Canyon	spawning & rearing	Deschutes -good Macks Canyon - fair	none	Deschutes - temp, pH Macks/Sixteen - temp
Ferry Canyon (7547)	Deschutes River & Ferry Canyon	spawning & rearing	Deschutes - good Ferry Canyon - excellent	2001 - bluebunch wheat grass-24%, bottlebrush squirrel tail-13%, Idaho fescue-13%	Deschutes - temp, pH Ferry - temp
Reckman, J.P. (7564)	Deschutes River & Jones Canyon	spawning & rearing	Deschutes - improving	none	Deschutes - temp, pH
Oak Canyon (7562)	Deschutes River & Oakbrook Creek	spawning & rearing	improving	improved riparian condition moving downstream	Deschutes - temp, pH Oak - temp
Buck Hollow (7558)	Buck Hollow Creek	spawning & rearing	recovering	none	yes-temp
Conley (7510)	Buck Hollow Creek	spawning & rearing	recovering	none	yes-temp
Ashley (7588)	Buck Hollow Creek	spawning & rearing	recovering	none	yes-temp
Holmes (7539)	Buck Hollow Creek	spawning & rearing	recovering	none	yes-temp
Webb, W.L. (7579)	Deschutes River & Buck Hollow Creek	spawning & rearing	Deschutes - good Buck Hollow-improving	none	Deschutes - temp, pH Buck Hollow - temp

<sup>6</sup> According to the BA, riparian vegetation conditions (Riparian Condition) were rated poor, fair, good, or excellent. “Poor” Riparian Condition means that the vegetation is in early seral stage, “fair” is in early to mid-seral, “good” is in mid-seral, and “excellent” is in mid- to late seral.

<b>Allotment</b>	<b>Streams</b>	<b>MCR Steelhead Use</b>	<b>Riparian Condition</b>	<b>Monitoring Results</b>	<b>303(d) List?</b>
Connolly (7511)	Deschutes River	spawning & rearing	improving	2001 - bluebunch wheat grass-2.5%	yes-temp, DO, pH
Woodside, H. (7584)	Deschutes River	spawning & rearing	fair to good	none	yes-temp, DO
Lindley (7548)	Deep Creek	spawning & rearing	degraded	none	yes-temp
Conroy, P.J. (7512)	Deep Creek & Cottonwood Creek	spawning & rearing	Deep - fair to good Cottonwood - poor to fair	none	Deep - temp
Morelli (7553)	Deschutes River Wapinitia Creek	spawning & rearing  rearing & migration	Wapinitia - fair to good	none	Deschutes - temp, DO Wapinitia - temp
Criterion (7583)	Deschutes River	spawning & rearing	good	none	yes-temp, DO
Forman, C. (7526)	Trout Creek	spawning & rearing	good	none	yes-temp, hab. mod., sedimentation
Nartz (7546)	Trout Creek	spawning & rearing	fair to good	none	yes-temp, hab. mod., sedimentation
Priday, J. (7560)	Trout Creek	spawning & rearing	good	none	yes-temp, hab. mod., sedimentation
Delude (7518)	Deschutes River	spawning & rearing	not rated	excellent regrowth	yes-temp, DO
Ward Creek (7525)	Ward Creek	spawning & rearing	fair	none	no
Frog Springs (7551)	Deschutes River	spawning & rearing	good	none	yes-temp, DO

Implementation of standards developed as a result of decisions described in the BLM's 1986 Two Rivers Resource Management Plan (USDI 1986) and the 1993 Lower Deschutes River Management Plan (BLM *et al.* 1993) regarding livestock grazing, off-road vehicle management, and management of undeveloped campsites have resulted in some improvements in riparian vegetation conditions on BLM lands along the Lower Deschutes River and some of its tributaries. Implementation of the Strategy for Salmon in 1992 and PACFISH in 1994 resulted in a concerted effort to rework grazing management strategies on allotments in the DRA and institute science-based grazing systems in order to eliminate long-term habitat deterioration and promote riparian recovery.

The BLM evaluated environmental baseline conditions within the action area for the subject actions at the project site and watershed scales and presented this information in the BA. The results of this evaluation, based on the "matrix of pathways and indicators" (MPI) described in *Making Endangered Species Act Effects Determinations for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996), follow. This method assesses the current condition of in-stream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species. An assessment of the important elements of MCR steelhead habitat is obtained by using the MPI process to evaluate whether aquatic habitat is properly functioning. For the purposes of this consultation, streams within the action area were put into six groups. These were: (1) Lower Deschutes River; (2) Macks Canyon, Jones Canyon, Bakeoven Creek, Buck Hollow Creek, Ferry Canyon, and Oakbrook Canyon; (3) Gordon Canyon, Harris Canyon, Sixteen Canyon, Box Elder Canyon, Rattlesnake Canyon, Cove Creek, Fall Canyon, Bull Run Canyon, Dry Canyon, and Craft Canyon; (4) Wapinitia Creek, Cottonwood Creek, and Deep Creek; (5) Trout Creek and Tenmile Creek; and (6) White River. Since actual data for many of the habitat indicators in the MPI are not available for many streams, ratings are based on professional judgement of BLM fishery biologists.

In the Lower Deschutes River mainstem, 11 of the 16 habitat indicators for which data were available were rated by BLM as properly functioning, based on thresholds presented in NOAA Fisheries' MPI. Water temperature, chemical contamination/nutrients, and physical barriers were rated as not properly functioning, while road density and location was rated as functioning at risk. Summer water temperatures as high as 76°F have been recorded at RM 1. The Lower Deschutes is on the Oregon Department of Environmental Quality (ODEQ) Clean Water Act Section 303(d) list because of low dissolved oxygen levels and pH. On the mainstem Deschutes River, the Pelton Dam at RM 100 prevents MCR steelhead from reaching historic spawning and rearing habitat upstream.

In stream groups 2-5, which are all tributaries to the Deschutes River, water temperature, large wood, pool frequency, width/depth ratio, and peak flow/base flow habitat indicators were rated by BLM as not properly functioning. Sediment/turbidity, chemical contamination/nutrients, substrate embeddedness, pool quality, and drainage network increase indicators are rated as at risk or not properly functioning for these tributary streams. The physical barrier indicator is

rated as properly functioning for these streams. Off-channel habitat was not rated, because these tributary streams tend to be in narrow canyons with very little potential for off-channel development. The remaining indicator (refugia, streambank condition, floodplain connectivity, and road density/location) ratings vary by stream group and are dispersed accordingly among properly functioning, at risk, and not properly functioning ratings.

For the White River, which enters the Deschutes River at RM 47, 9 of the 16 habitat indicators were rated as properly functioning. Water temperature and sediment/turbidity were rated as not properly functioning. Maximum water temperatures reach 75°F. Since the White River originates on the slopes of Mt. Hood, the glacial flour content is high. A series of natural waterfalls at RM 2 on White River blocks upstream migration for anadromous fish. The chemical contamination/nutrients, substrate embeddedness, pool quality, drainage network increase, and road density/location indicators were rated as at risk.

#### Lower Deschutes River Allotments

There are 11 allotments located alongside the Deschutes River. The following indicates each allotment and indicates in parentheses which side of the river it is located, and the river length associated with each allotment: The Bird (eastside 4.0 miles), Ferry Canyon (westside 3.5 miles), J.P. Reckman (eastside 12.5 miles), Oak Canyon (westside 11 miles), W.L. Webb (eastside 7.0 miles), Connolly (eastside 3.5 miles), H. Woodside (westside 1.0 mile), Morelli (westside 0.8 mile), Criterion (eastside 6.5 miles), Delude (eastside 4.0 miles), and Frog Springs (eastside 3.5 miles) allotments are located along the Deschutes River. The 37,098 acres of BLM-administered lands on these 11 allotments comprise approximately 2.1% of the total acreage in the Lower Deschutes River subbasin. The Bird, Ferry Canyon, J.P. Reckman, Oak Canyon, and W.L. Webb allotments are located downstream from White River (RM 47).

On BLM-administered land within the Bird, Oak Canyon, and Morelli allotments (about the Deschutes River for a total of 15.8 miles), fences exclude livestock from the river and the riparian area along the river. On BLM-administered lands in the Criterion Allotment (7583) a fence excludes livestock access to the river except at three water gaps totalling approximately 60 feet; on the Delude Allotment (7518) approximately 2.5 miles of the 5.0 total miles of the riparian area along the river is excluded from livestock use. On BLM-administered land on the J.P. Reckman and Connolly allotments, fences create separate riparian pastures along the river, which are grazed during early spring. Approximately 17.5 miles of riparian area on BLM-administered lands on the Ferry Canyon, W.L. Webb, H. Woodside, approximately half of Delude, and Frog Springs allotments are not currently fenced. This amounts to approximately 8.5% of the total of approximately 200 shoreline miles (100 RMs x 2) along the Deschutes River downstream from Pelton Dam. MPI habitat ratings for the Deschutes River are discussed above. The following is a discussion of general riparian and streambank conditions where information is available for BLM-administered allotments which border the Deschutes River that are the subject of this Opinion.

According to the BA, riparian vegetation conditions were rated poor, fair, good, or excellent. Poor condition means that the vegetation is in early seral stage, fair condition is in early to mid-

seral, good is in mid-seral, and excellent is in mid- to late seral. Conditions along the Deschutes River in the Bird Allotment (7501) are good. The Deschutes River in this allotment has been excluded from livestock use by a fence since the 1980s. Riparian vegetation conditions along Macks Canyon, which has been rested from grazing for the past six years, are rated fair with an improving trend. A wildfire in this area in 1994 has slowed recovery.

Riparian vegetation conditions along the Deschutes River in the Ferry Canyon Allotment (7547) are rated good and in an improving trend. The lower portion of Ferry Canyon has been excluded from livestock use by fencing and contains excellent vegetative diversity. Livestock are excluded from the upper portion of Ferry Canyon by steep canyon walls, and the riparian area along this reach is also in excellent condition.

Riparian conditions along the Deschutes River on the J.P. Reckman Allotment were heavily impacted by years of late season grazing, but are improving under early season grazing management that reduces the amount of time cattle are in the riparian because of cooler temperatures and reduced palatability of riparian vegetation. Several species of perennial grasses have become established and reed canary grass has increased dramatically along this stretch of the river. The dominant tree species is white alder.

On the W.L. Webb Allotment (7579), riparian vegetation conditions along the Deschutes River are rated good and improving. Along the 0.75 mile reach of Buck Hollow Creek in this allotment, the BA notes a lack of understory vegetation, high width/depth ratio, and unstable streambanks which resulted from past season long grazing. However, riparian vegetation is recovering, width/depth ratio is decreasing, and streambanks are becoming more stable since grazing has been changed to an early season strategy<sup>7</sup>. Grazing actually occurs sometime between November 1<sup>st</sup> to May 1<sup>st</sup>.

Vegetative and riparian conditions along the Deschutes River in the Connolly Allotment (7511) appear to be slowly improving under the current management regime. There are scattered reaches, primarily associated with recreation sites, which lack good vegetative cover and streambank structure. Riparian vegetation includes white alder, reed canary grass, sedges, blackberry, horsetail, thistle, knapweed, cheat grass, and Kentucky bluegrass. Utilization was measured in the Sherars Pasture of this allotment on May 1, 2001, and utilization of bluebunch wheat grass was found to be 2.5% which is considered minimal. There was no use of perennial grasses, light use on annuals, and riparian grasses received light/patchy use. Utilization was also measured in the Oak Springs Pasture on May 1, 2001, and utilization of bluebunch wheat grass was also found to be 2.5%. Use was mostly on cheatgrass and bulbous blue grass, with patches of bluebunch wheat grass in key areas grazed by cattle seeking greener species. River banks looked good, with only patchy use on riparian species.

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<sup>7</sup> Telephone Conversation with Jim Eisner, Fishery Biologist, BLM (Jan. 7, 2002).

Riparian vegetation conditions along the Deschutes River in the H. Woodside Allotment (7584) are rated fair-to-good and improving. Woody vegetation consists of alder and willow, while herbaceous vegetation consists mainly of reed canary grass.

On the Morelli Allotment (7553), riparian vegetation conditions along Wapinitia Creek are in fair-to-good condition. A fence along the railroad tracks excludes livestock from the riparian area along the river.

On the Criterion Allotment (7583), since livestock are excluded by fence, the riparian areas along the Deschutes River are in good condition. There are numerous perennial springs on this allotment; most of which have been developed for livestock use.

On the Delude Allotment (7518), approximately half of the Deschutes River riparian area in the Mecca Flat pasture has been exclosed by fencing since the 1980s. Much of the riparian area in the Trout Creek pasture is inaccessible to livestock because of steep topography. Utilization measurements were attempted in the Trout Creek Pasture on April 30, 2001, but regrowth made it impossible to determine what utilization had been, however it appeared to be consistent with use in past years. It appeared that cows had been taken off at least a week prior to the utilization visit, and more likely two weeks prior. Regrowth was good with Idaho fescue having a small amount of last year's growth remaining, but six inches of new growth. Bluebunch wheat grass had up to eight inches of new growth on plants that were used by cattle, and cheatgrass was heading out.

On the Frog Springs Allotment, riparian conditions along the river are rated in good condition and improving. Steep slopes result in a narrow riparian area along much of this section of river. Vegetation consists of alder, hackberry, mock orange, elderberry, and reed canary grass.

#### Buck Hollow, Macks Canyon, Ferry Canyon, Oakbrook Canyon, Jones Canyon

All or portions of the Ashley, Buck Hollow, Conley, Holmes, and W.L. Webb allotments are located along Buck Hollow Creek. According to the BA, the reaches of Buck Hollow Creek which flow through BLM-administered lands on the Ashley (1.0 mile), Buck Hollow (2.2 miles), Conley (0.25 mile), Holmes (0.25 mile), and W.L. Webb (0.75 mile) are currently in a degraded condition, but are recovering. This is a total of 4.45 miles on BLM-administered livestock grazing allotments along Buck Hollow Creek. There are approximately 26 miles of MCR steelhead habitat in the mainstem of Buck Hollow Creek (ODFW 1997). High summer water temperatures (up to 82°F), high width/depth ratios, lack of riparian vegetation, lack of instream cover, and lack of stream habitat complexity all contribute to the poor fisheries habitat conditions. On the Buck Hollow Allotment, monitoring and allotment inspections conducted over the last 10 years have noted very little vegetative recovery of the riparian zone along the creek. According to the BA, most of these problems can be attributed to past improper grazing management and past major flow events (*e.g.* 1964, 1978, and 1996). Table 3 displays the results of spawning surveys conducted for Buck Hollow Creek from 1990 through 2002. The number of redds increased considerably from 1990 to 2002.

**Table 3.** Summer Steelhead Redd Counts for Buck Hollow Creek from 1990 to 2002. Adapted from ODFW (2002) Tables 11 and 12.

Stream	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Buck Hollow Cr.	85	72	34	48	8	69	65	136	179	152	110	445	221

Portions of the Bird (1.6 miles) and Pat Sharp (0.1 mile) allotments are located along Macks Canyon. On both allotments, riparian conditions along Macks Canyon are rated as fair, and are improving from the effects of a 1994 wildfire. That portion of Macks Canyon on the Bird Allotment has been rested for the past six years and the mouth of Macks Canyon has been fenced to exclude livestock. There are no plans to graze this portion of the pasture in the immediate future. Macks Canyon provides approximately 2.0 miles of MCR steelhead habitat (ODFW 1997).

A portion of the Ferry Canyon Allotment is located along Ferry Canyon. The lower portion of Ferry Canyon is exclosed from livestock use by fencing, and steep terrain in the upper portion excludes livestock. Riparian conditions are excellent in the upper portion and improving in the lower portion. Ferry Canyon provides approximately 2.5 miles of MCR steelhead habitat (ODFW 1997). Utilization of key species was measured on May 1, 2000 in the Riparian Pasture, and found to be 6% (slight) on bluebunch wheat grass and 21.5% on great basin wild rye (light). Utilization of key species was measured on May 5, 2001 in the Riparian Pasture, and found to be 24% (light) on bluebunch wheat grass, 13% (slight) on bottlebrush squirrel tail, and 13% (slight) on Idaho fescue. It was noted that the condition of the riparian zone continues to improve. Streambanks were almost entirely lined with shrubs including willow, alder, mock orange, cottonwood, and chokecherry with at least three canopy levels.

A portion of the Oak Canyon Allotment is located along Oakbrook Canyon (0.75 mile). According to the BA, Oakbrook Creek provides poor habitat for fish. Major flow events have resulted in downcutting and deposition of fine sediment. The lower portion of the creek is fenced, but unauthorized summer use still occurs. Oakbrook Creek provides approximately 3.0 miles of MCR steelhead habitat (ODFW 1997). The Oak Canyon Allotment Riparian Pasture was visited on April 4, 2001, and no cattle were seen due to the apparent delayed turnout, but there was moderate to heavy browse on many smaller alder and mock orange likely due to big game use. The Oak Canyon Allotment Riparian Pasture was also visited on May 16, 2001, and riparian condition was found to be improving with vegetation extending farther downstream. Vegetation included alder, seep spring, monkeyflower, and veronica.

A portion of the J.P. Reckman Allotment is located along Jones Canyon (0.25 mile). Jones Canyon flows intermittently, but could be used by MCR steelhead during high water years. Jones Canyon provides approximately 2.0 miles of MCR steelhead habitat (ODFW 1997).

Deep Creek and Cottonwood Creek (tributaries to Bakeoven Creek)

Table 4 displays the results of spawning surveys conducted for Bakeoven Creek from 1990 through 2002. The number of redds increased considerably from 1990 to 2002.

**Table 4.** Summer Steelhead Redd Counts for Bakeoven Creek from 1990 to 2002.  
Adapted from ODFW (2002) Tables 11 and 12.

Stream	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Bakeoven Creek	22	8	9	21	13	20	35	57	68	89	83	480	214

The P.J. Conroy and Lindley Allotments are located along these drainages. On the P.J. Conroy Allotment, the riparian area along Cottonwood Creek (0.92 mile) is rated in poor-to-fair condition, while the area along Deep Creek (0.65 mile) is rated in fair-to-good condition. On the Lindley Allotment, Deep Creek (1.1 miles) is in degraded condition, with high water temperatures, high width/depth ratio, lack of riparian vegetation, lack of instream cover, and lack of habitat complexity. Steelhead spawning is suspected in Deep Creek and Cottonwood Creek, but has not been confirmed. ODFW (1997) reports that there are approximately 8.0 miles of MCR steelhead habitat in Deep Creek. Cottonwood Creek is not listed as providing MCR steelhead habitat by ODFW.

Trout Creek and Tenmile Creek

The C. Forman, Nartz, J. Priday, and Ward Creek Allotments are located in the Trout Creek watershed. Tenmile and Ward Creeks are tributaries to Trout Creek. On the C. Forman Allotment, Trout Creek (a total of 0.5 miles in two separate segments) is rated in good condition, with moderate width/depth ratio, diverse riparian vegetation, some instream cover, and moderate habitat complexity. However, high water temperatures and sediment from upstream sources limit spawning and rearing potential for MCR steelhead. On the Nartz Allotment, riparian conditions along Trout Creek (0.4 mile) are rated fair-to-good and improving. On the J. Priday Allotment, the condition of Trout Creek (0.25 mile) is similar to that on the C. Forman Allotment described above. On the Ward Creek Allotment, Ward Creek riparian condition is rated fair. According to ODFW (1997), Trout Creek provides approximately 48 miles, Tenmile Creek six miles, and Ward Creek 10.5 miles of MCR steelhead habitat. BLM-administered livestock grazing allotments border these three streams for a total of 2.85 miles in segments ranging from 0.1 to 1.0 mile.

Wapinitia Creek

The Morelli (0.2 mile) allotment is located along Wapinitia Creek. Wapinitia Creek serves mainly as rearing and migratory habitat for MCR steelhead with very limited spawning area. Riparian conditions vary from fair to excellent. Approximately 50% of the riparian area along Wapinitia Creek is composed of rock. Wapinitia Creek provides approximately 8.0 miles of anadromous fish habitat.

## 2.1.3 Analysis of Effects

### 2.1.3.1 Effects of Proposed Actions

The effects determination on habitat parameters in the BA was made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting effects of the actions on them. The process described in NOAA Fisheries (1996) was used to provide adequate information in a tabular form in the BA for NOAA Fisheries to determine the effects of actions subject to consultation. The expected effects of the actions are expressed in terms of how they restore, maintain, or degrade each of 16 aquatic habitat factors in the action area, as described in the “checklist for documenting environmental baseline and effects of the action” (checklist) completed for each action and watershed. The results of the completed checklist for the action provide a starting point for determining the overall effect of the action on the environmental baseline in the action area and for assessing effects on important elements of MCR steelhead habitat.

Impacts of livestock grazing to stream habitat and fish populations can be separated into direct and indirect effects. Direct effects are those which contribute to the immediate loss or harm to individual fish or embryos (*e.g.*, directly stepping on a fish, trampling a redd that results in the actual destruction of embryos, or dislodging the embryos from the protective nest and ultimately destroying eggs). Indirect effects are those impacts which occur at a later time, causing loss of specific habitat features (*e.g.*, undercut banks, spawning beds), localized reductions in habitat quality (*e.g.*, sedimentation, loss of riparian vegetation, changes in channel stability and structure), and, ultimately, cause loss or reductions of entire populations of fish, or widespread reductions in habitat quantity and/or quality.

Direct effects of livestock grazing may occur when livestock enter the streams occupied by MCR steelhead to loaf, drink, or cross the stream. During the early phases of their life cycle, MCR steelhead have little or no capacity for mobility, and large numbers of embryos or young are concentrated in small areas. Livestock entering fish spawning areas can trample redds, and destroy or dislodge embryos and alevins. Belsky *et al.* (1997) provides a review of these direct influences on stream and riparian areas. Wading in streams by livestock can be assumed to induce mortality on eggs and pre-emergent fry at least equal to that demonstrated for human wading (Roberts and White 1992). In this investigation, a single wading incident upon a simulated spawning bed induced 43% mortality of pre-hatching embryos. In a recent (July 12, 2000) occurrence of unauthorized livestock grazing in the Sullens Allotment on the Malheur National Forest in Eastern Oregon, five of five documented MCR steelhead redds in a meadow area of a Rosgen C-type stream channel in Squaw Creek (Middle Fork John Day River subbasin) were trampled by cattle (U.S. Forest Service memorandum, August 17, 2000) (Rosgen and Silvey 1998). The current grazing strategy for the Deschutes Resources Area occurs between November 1<sup>st</sup> and May 1<sup>st</sup>. This strategy minimizes the time cattle spend in the streams and surrounding riparian areas and therefore reduces the potential for redd trampling. The BLM suggests that cattle spend less time in streams and riparian areas from November 1<sup>st</sup> to May 1<sup>st</sup> than the rest of the year for several reasons: (1) The air temperature is cold, so cattle spend most

of their time on the warmer hillslopes and only go into riparian areas for water or to cross the stream to access the opposite hillslope; (2) vegetation on the hillslope is more palatable than riparian vegetation; and (3) streamflows are higher and therefore cows are less likely to stand and walk in streams.

If redd trampling is observed, avoidance of direct impacts to MCR steelhead spawning areas can be achieved by scheduling grazing in pastures after July 15 or by excluding known spawning areas from livestock access where spawning habitat is present. As mentioned above, the ODFW guidelines for the timing of in-water work list February 1- March 15 as the preferred in-water work period for the mainstem Deschutes River downstream from Pelton Dam, and July 1- October 31 as the preferred work period for White River and Buck Hollow, Bakeoven, and Trout Creeks. These in-water work windows are established to minimize impacts to the spawning and egg-to-smolt period. In some allotments or pastures, there are pre-existing natural topographic, geologic, and vegetative features or high spring water flows that can naturally exclude or minimize livestock use from spawning areas. Other forms of direct take (*e.g.*, harassment of MCR steelhead by livestock when livestock enter or are adjacent to occupied habitat, resulting in MCR steelhead behavioral modifications) are more difficult to address in the context of an economically-viable grazing program. Direct take in the form of harassment is reduced, in the long term, by rangeland management that results in better riparian and in-channel habitat conditions, such as those parameters found in the MPI, that creates more cover and other important habitat features conducive to MCR steelhead survival and recovery.

Cattle wading into a stream to loaf, drink or cross the stream have the potential to frighten juvenile MCR steelhead from streamside cover. Once these juveniles are frightened from cover and swim into open water, they become more susceptible to predation from larger fish and avian predators. However, NOAA Fisheries believes that the risk of mortality of juvenile salmonids due to flushing from cover by watering cattle is minimal. In addition, because of the small area of streambank utilized by cattle while watering in larger rivers (*e.g.*, mainstem Deschutes) and in areas with good streamside cover in the immediate vicinity of the watering areas, mortality of juvenile MCR steelhead from this activity is expected to be minimal.

#### Allotment-Specific Effects

As discussed above, MCR steelhead spawn in the Lower Deschutes River and west side tributaries of the Deschutes River from March through June, and spawn in the east side tributaries from late-January through mid-April. Fry emergence occurs from late May through June, depending on time of spawning and water temperature. Therefore, if livestock access is allowed at any time between February and early July on streams where MCR steelhead spawn, there is potential for harassment of spawning adults, trampling of redds, or harassment of rearing juveniles.

Studies (Leonard *et al.* 1997, Ehrhart and Hanson 1997, and Kinch 1989) conducted in the western United States have shown that cattle are less likely to concentrate in riparian areas during spring months because of flooding and because water and herbaceous vegetation for grazing is readily available in upland areas away from streams. By June, stream flows have

receded and water and forage may be less available in upland areas. All allotments covered in this Opinion contain or are adjacent to streams where MCR steelhead are known or suspected to spawn and rear. Current BLM spring grazing strategies allow grazing in these allotments during the time when MCR steelhead eggs or alevins may be present in stream gravels.

Under current BLM strategies, grazing in riparian areas on Prineville BLM (Deschutes Resource Area) allotments is authorized to occur sometime between November 1 and May 1 with most use taking place from February to the middle of April. Dates of actual livestock turnout and length of grazing season vary based on environmental conditions, plant phenology, and limited BLM control and management in minority ownership situations. Cattle graze on BLM-administered allotments on the following west side tributaries to the Deschutes River which are known to contain steelhead spawning habitat: Ferry Canyon (Ferry Canyon Allotment), and Oakbrook Creek (Oak Canyon Allotment). BLM-administered grazing allotments where cattle graze are located along the following east side tributaries to the Deschutes River which are known to contain steelhead spawning habitat: Sixteen Canyon (Bird Allotment), Macks Canyon (Bird and Pat Sharp Allotments), Jones Canyon (J.P. Reckman Allotment), Buck Hollow Creek (Buck Hollow, Conley, Ashley, Holmes, and W.L. Webb Allotments), Bakeoven Creek tributaries [Deep Creek (Lindley and P.J. Conroy Allotments) and Cottonwood Creek (P.J. Conroy Allotment)], Wapinitia Creek (Morelli Allotment), Trout Creek (C. Forman, Nartz, and J. Priday, Allotments), and a Trout Creek tributary [Ward Creek (Ward Creek Allotment)].

The Buck Hollow Creek drainage (an eastside tributary), where spawning would be expected to begin as early as January and fry emergence could occur into May, contains all or portions of five BLM-administered allotments (Buck Hollow, Conley, Ashley, Holmes, and W.L. Webb). Adult MCR steelhead have been observed in Buck Hollow Creek by ODFW as far upstream as Macken Canyon which enters Buck Hollow Creek upstream from all of these allotments. The segments of Buck Hollow Creek on BLM-administered allotments range from 0.25 mile each on the Conley and Holmes Allotments to 2.2 miles on the Buck Hollow Allotment and total 4.45 miles. As discussed above, Buck Hollow Creek in all of these allotments is in a degraded condition and far below its potential for steelhead. The Two Rivers Management Plan (USDI 1986) recommended two miles of riparian fencing on the Buck Hollow Allotment and four miles of riparian fencing on the W.L. Webb Allotment. The Buck Hollow fence was installed prior to 2001, but the W.L. Webb fence was not installed due to logistical concerns. In addition, the Two Rivers Management Plan was written when the grazing strategy used was season long. Currently, an early-spring grazing strategy is in place on the W.L. Webb Allotment so riparian vegetation is recovering<sup>8</sup>. Consequently, the BLM is not planning to install the fence in the W.L. Webb Allotment.

The Trout Creek drainage (another eastside tributary) and its tributaries (Tenmile and Ward creeks), where spawning would be expected to begin as early as January and fry emergence could occur into May, contains all or portions of four BLM-administered allotments (C. Forman,

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<sup>8</sup> Telephone Conversation with Jim Eisner, Fishery Biologist, BLM (Jan. 7, 2002).

Nartz, J. Priday, and Ward Creek). The segments of Trout Creek or its tributaries on BLM-administered allotments totals 2.25 miles. As discussed above, Trout Creek in all of these allotments is in a good condition.

Allotments addressed in this Opinion which are adjacent to the mainstem Deschutes River are Bird, Ferry Canyon, J.P. Reckman, Oak Canyon, W.L. Webb, Connolly, H. Woodside, Morelli, Criterion, Delude, and Frog Springs. Because of the depth and flow of the mainstem Deschutes River, cattle are not likely to wade into the river and are, therefore, less likely to trample MCR steelhead redds than in tributary streams. In addition, fences exclude livestock from the river on all of the Bird, Oak Canyon, and Morelli Allotments and on half of the Delude Allotment. The river is excluded from livestock use on all of the Criterion Allotment, except at three watergaps. Riparian pasture fences are present along the river on the J.P. Reckman and Connolly Allotments, however, these riparian pastures are grazed during early spring under the current grazing strategy.

Macks Canyon (Bird and Pat Sharp Allotments), Sixteen Canyon (Bird Allotment), and Jones Canyon (J.P. Reckman Allotment) contain intermittent streams on BLM-administered lands. MCR steelhead are known to spawn in the lower portions of these streams during wet years. Those portions of Wapinitia Creek on BLM-administered portions of the Morelli Allotment serve as migratory and rearing habitat for MCR steelhead.

#### **2.1.3.2 Effects on Habitat**

Numerous symposia and publications have documented the detrimental effects of livestock grazing on stream and riparian habitats (Johnson *et al.* 1985; Menke 1977; Meehan and Platts 1978; Cope 1979; American Fisheries Society 1980; Platts 1981; Peek and Dalke 1982; Ohmart and Anderson 1982; Kauffman and Krueger 1984; Clary and Webster 1989; Gresswell *et al.* 1989; Kinch 1989; Chaney *et al.* 1990; Belsky *et al.* 1997). These publications describe a series of synergistic effects that can occur when inappropriate grazing management strategies are applied (*e.g.* cattle over-graze riparian areas). Over time, woody and hydric herbaceous vegetation along a stream can be reduced or eliminated; trampling by livestock causes streambanks to collapse; without vegetation to slow water velocities, hold the soil, and retain moisture, floods cause more erosion of streambanks; the stream becomes wider and shallower and in some cases downcut; the water table drops; and hydric, deeply rooted herbaceous vegetation dies out and becomes replaced by upland species with shallower roots and less ability to bind the soil. The resulting instability in water volume, increased summer water temperature, loss of pools and habitat adjacent and connected to streambanks, and increased substrate fine sediment and cobble embeddedness adversely affect MCR steelhead and their habitat.

Based solely on plant phenology, the only grazing strategies generally considered to have a good chance for rehabilitating degraded streams and riparian areas are light or tightly controlled uses such as winter-only grazing or riparian pastures with short, early-spring use periods, and certain strategies incorporating a full season rest (Platts 1991). Clary and Webster (1989) consolidated a number of studies to outline measures needed for maintenance and restoration of fully

functioning riparian areas. They recommend resting most poor ecological condition (percentage similarity of riparian vegetation to the potential natural community/composition < 25%; or stream bank/channel condition rating of “poor”) riparian areas and applying “riparian grazing management practices” such as spring-only grazing and residual vegetation requirements to riparian areas in fair (percent similarity of riparian vegetation to the potential natural community/composition 26-50% or better; and stream bank/channel condition rating of at least "fair") or better ecological condition. They stress that even ecologically conservative grazing systems will not succeed without good range management such as adequate fencing, good distribution of water and salt, and adequate riding to ensure uniform cattle distribution. Cow/calf pairs have a tendency to concentrate and loaf in riparian areas during mid to late summer. Concentrated livestock use, as often occurs in uncontrolled season-long and certain rotational grazing systems, may cause unacceptable damage to woody plants and streambank morphology (Clary and Webster 1989). Spring and winter season use generally produce better livestock distribution between riparian and upland areas due to flooding of riparian areas (resulting in limited access for cattle), the presence of palatable forage on the uplands, and alternative water sources (Leonard *et al.* 1997, Ehrhart and Hanson 1997, and Kinch 1989). Myers (1989) concluded that good or excellent riparian conditions were maintained by grazing systems which do not allow livestock use during the hot season, and recommended grazing not be allowed during the hot summer months more than once every four years. Similarly, Clary and Webster (1989) stated grazing should be avoided during mid and late summer and recommend early grazing, followed by complete removal of livestock. Early grazing allows significant herbaceous regrowth to occur in riparian areas, reducing most grazing damage before higher flows occur the following spring or summer, and avoids impacts to woody plant species when livestock forage preference shifts occur.

In areas under historic season-long grazing, major vegetation changes can and have taken place with changes in livestock use. Routinely grazing an area for too long or too late in the growing season can cause adverse changes in the plant community. Individual plants are eliminated by re-grazing them during the growing season and not allowing adequate recovery after grazing. Regardless of seral stage, at least six inches of residual stubble or regrowth is recommended to meet the requirements of plant vigor maintenance, bank protection, and sediment entrapment (Clary and Webster 1989). More than six inches of stubble height may be required for protection of critical fisheries or easily eroded streambanks and riparian ecosystem function (Clary and Webster 1989). Over time, entire plant communities can change as a result of heavy grazing pressure. In mountain riparian systems of the Pacific Northwest, the replacement of native bunch grass with Kentucky bluegrass has occurred in many areas. Kentucky bluegrass has established itself as a dominant species in native bunch grass meadows as a result of overgrazing and subsequent habitat deterioration. Plants in the early seral stage community do not provide as much protection for the watershed and streambanks. Many forbs and annual plants that frequently dominate early seral plant communities do not have the strong deep root systems of the later seral perennials such as bunchgrasses, sedges, rushes, shrubs, and willows.

According to the BA, with the implementation of the Two Rivers Resource Management in 1986, the Strategy for Salmon in 1992, the Lower Deschutes River Management Plan in 1993,

and PACFISH in 1994, many riparian areas in the subbasin have management programs in place to protect and enhance their condition. On the Prineville BLM District, which includes the Lower Deschutes subbasin, a concerted effort was begun in the early 1990s to rework grazing management strategies and institute science-based grazing systems in order to eliminate long-term habitat deterioration and promote riparian recovery. Season of use changes and restrictions were instituted, based on scientific knowledge which deals with the phenology of key plant species in order to determine timing of grazing and lead to development of healthy riparian areas. Science-based grazing strategies to promote riparian vegetative growth have been completed for most allotments within the Lower Deschutes River subbasin. In general, this has meant a shift from summer long, hot season grazing to early spring grazing strategies.

### **2.1.3.3 Cumulative Effects**

“Cumulative effects” are defined in 50 CFR 402.02 as 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.” The “action area” for this consultation, therefore, includes the mainstem Deschutes River from Pelton Reregulating Dam (RM 100) downstream to its mouth (RM 0) and all tributaries in that river section which flow through or adjacent to BLM land. The BLM identified no specific private or state actions that are reasonably certain to occur in the future that would affect MCR steelhead or their habitat within the action area although private grazing use is likely to continue at current levels. Of the 41,467 acres within the Lower Deschutes River National Wild and Scenic River boundary, the BLM administers 20,461 acres, the State of Oregon 4,806 acres, the Confederated Tribes of Warm Springs (CTWS) 5,699 acres, and 10, 251 acres are privately owned (BLM *et al.* 1993). However, for the Lower Deschutes subbasin as a whole, the BLM manages approximately 171,849 acres, or 9.9% of the 1.73 million total acres in the subbasin.

Approximately 26 of the 29 miles of state-owned lands along the mainstem lower Deschutes River has been excluded from livestock grazing. Private land owners and the CTWS have excluded livestock grazing from an additional 10-12 miles of the lower Deschutes River. ODFW, in working with various private landowners as well as state and Federal agencies, has succeeded in having approximately 75 miles of steelhead-producing lower Deschutes River tributary streams excluded from livestock grazing (August 11, 1999, memorandum from Jim Newton, ODFW Fishery Biologist).

### **2.1.4 Conclusion**

NOAA Fisheries has determined that, when the effects of the subject actions addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of MCR steelhead. These conclusions were reached primarily because: (1) All relevant aquatic habitat indicators on BLM-administered livestock grazing allotments along the mainstem Deschutes River and tributaries would be maintained or improved under current grazing regimes; (2) available BLM monitoring data indicate that implementation of a spring grazing season on most allotments has resulted in

improvement in riparian vegetation and streambank conditions; (3) although available data shows that trampling of MCR steelhead redds does occur and that the percentage of redds trampled can be high in certain channel types (meadow areas, C-type stream channels), shifting to an early-spring grazing strategy reduces the amount of time cows are in the riparian area and reduces the concentration of cows in the riparian area, and closely monitoring redds in close proximity to watering sites and crossings and protecting them if trampling is observed will minimize the number of redds trampled by livestock; and (4) because of improvements in riparian vegetation, stream shading, and streambank stability, aquatic habitat indicators such as water temperature, sediment, substrate embeddedness, width/depth ratio, and streambank condition are expected to be improved on Deschutes River tributary streams. In reaching these conclusions, NOAA Fisheries has used the best scientific and commercial data available as documented herein and by the BA describing the Federal actions.

### **2.1.5 Conservation Recommendations**

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species or to develop additional information. NOAA Fisheries believes that the following conservation recommendations regarding livestock grazing should be implemented:

1. Review range improvement budget annually and prioritize areas which would benefit from development of off-channel water sources and cattle exclusion devices for riparian areas along streams containing MCR steelhead habitat.
2. Annually, pursue full funding of the livestock grazing program to fulfill aquatic and riparian conservation measures previously identified in BLM management plans (Two River Plan, PACFISH, and Lower Deschutes River Management Plan).
3. Annually, review all allotments for opportunities to allow for rest or additional rest of high priority pastures. The review should result in implementing changes in grazing system, restructuring of pasture boundaries, and increasing the number of pastures within an allotment to promote conservation of and minimize future impacts to MCR steelhead.
4. Review the adequacy of the monitoring program for determining riparian condition trends, specifically focus on the frequency of monitoring and types of monitoring used.
5. Work with adjacent private land owners to facilitate BLM access for necessary monitoring of grazing management practices and ecological conditions.

6. When unauthorized<sup>9</sup> or excess<sup>10</sup> use by livestock occurs on BLM land in areas providing MCR steelhead habitat, the owner of the cattle will be notified to remove the livestock immediately. The BLM should also notify NOAA Fisheries Habitat Division within 24 hours. The BLM should use any and all administrative and law enforcement capabilities to remove the livestock as soon as possible.

### **2.1.6 Reinitiation of Consultation**

Reinitiation of consultation is required if: (1) Redd trampling is observed; (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR. 402.16). The BLM, Prineville District, may also be required to reinitiate consultation if the proposed actions are not consistent with conservation measures developed through the pending consultation on land and resource management plans for Federal land management units in the Mid- and Upper Columbia River basins.

## **2.2 Incidental Take Statement**

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. “Harass” is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. “Incidental take” is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

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<sup>9</sup> Unauthorized use is any incident whereby livestock owned by a non-permittee enter onto the Federal lands.

<sup>10</sup> Excess use is any incident whereby livestock owned by a permittee holding a grazing permit are found in areas or at times other than shown on the grazing permit or otherwise authorized under a bill for collection. NOAA Fisheries also considers use by greater numbers of cattle than allowed by the grazing permit to be excess use.

### **2.2.1 Amount or Extent of Take**

NOAA Fisheries anticipates that the subject grazing actions covered by this Opinion are reasonably certain to result in incidental take of MCR steelhead. Some level of incidental take is expected to result from livestock grazing due to the potential for cattle to actually trample MCR steelhead redds, disturbance of spawning adult steelhead, or frightening of juvenile MCR steelhead from cover by livestock wading in streams. Because of the inherent biological characteristics of aquatic species such as MCR steelhead, however, the likelihood of discovering take attributable to these actions is very small. Effects of actions such as those addressed in this Opinion are largely unquantifiable in the short term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though NOAA Fisheries expects some incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take of listed fish at any life stage.

### **2.2.2 Effect of the Take**

In this Opinion, NOAA Fisheries determines that the level of anticipated take is not likely to result in jeopardy to MCR steelhead when the reasonable and prudent measures are implemented.

### **2.2.3 Reasonable and Prudent Measures**

NOAA Fisheries believes the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of MCR steelhead resulting from the actions covered in this Opinion. The BLM shall:

1. Monitor the current grazing system, designed to avoid take of MCR steelhead, in order to ensure that redd trampling is not occurring. If redd trampling is occurring BLM shall minimize the likelihood of incidental take resulting from livestock grazing and associated activities by managing livestock grazing allotments such that direct effects of livestock on MCR steelhead are avoided or minimized.
2. Minimize the likelihood of incidental take resulting from livestock grazing and associated activities by managing livestock grazing allotments such that direct and indirect effects of livestock on key components of MCR steelhead habitat are avoided or minimized.

### **2.2.4 Terms and Conditions**

To be exempt from the prohibitions of section 9 of the ESA, the BLM must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1, (monitoring the current grazing system to ensure that no redd trampling is occurring) the BLM shall:
  - a. Develop and implement an incidental take monitoring program that samples select MCR steelhead spawning areas biweekly, from the time of redd construction to emergence, to provide data demonstrating that cattle under the current grazing strategy are not trampling MCR steelhead redds.
  - b. If redd trampling is observed, minimize take of MCR steelhead by protecting MCR steelhead redds observed within 20 feet of a cattle watering site or stream crossing by controlling cattle access to the redd until cattle are removed from the pasture, in order to prevent further trampling.
  - c. Monitor incidental take of MCR steelhead associated with cattle grazing by visiting all known spawning reaches within range allotments at least once during late March or early April each year, or as adjusted for run timing.
  - d. Monitor incidental take of MCR steelhead associated with cattle grazing by visiting suspected spawning reaches of Deep Creek and Cottonwood Creek within range allotments at least once during late March or early April each year, or as adjusted for run timing.
  - e. Minimize take of MCR steelhead by protecting MCR steelhead redds observed within 20 feet of a cattle watering site or stream crossing by controlling cattle access to the redd until cattle are removed from the pasture, in order to prevent redd trampling.
  - f. Maintain and ensure proper operation of all enclosure structures, such as fences, designed to minimize take of spawning and rearing MCR steelhead.
  - g. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the NOAA Fisheries' Law Enforcement Office, Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, WA 98661; phone: 360.4189.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.
  
2. To implement reasonable and prudent measure #2, (managing livestock grazing allotments) the BLM shall:
  - a. Consistently and fully implement grazing-related standards and guidelines (GM-1, GM-2, GM-3, and GM-4) listed in PACFISH to not retard the attainment of Riparian Management Objectives regarding bank stability, water temperature,

- large woody material, lower bank angle, and width/depth ratio; as well as other aquatic habitat parameters which may be effected by livestock grazing.
- b. Meet all requirements of and fully implement the 2000 Grazing Implementation Monitoring Module and the piloted Effectiveness Monitoring Module.
  - c. Provide an end-of-year annual grazing tour with NOAA Fisheries. The tour's purpose is to review successes and failures of the current year's grazing activities, and develop recommendations for future activities.
  - d. Provide an end-of-year report on grazing in allotments which contain MCR steelhead habitat or which may affect habitat downstream to NOAA Fisheries by November 1<sup>st</sup> of each year. The report shall include the following: (1) Overview of the proposed action and actual management strategy implemented (livestock numbers, on-off dates for each pasture, grazing strategy, *etc.*); (2) specific BLM implementation and effectiveness monitoring data, date, and location collected (stubble height, use of woody vegetation, bank damage, unauthorized grazing, fence maintenance); (3) results of monitoring carried out according to the DRA monitoring plan, including results from all available cycles; (4) most recent photos documenting trend at riparian photopoints; (5) specific permittee monitoring data (6) review of management and compliance successes and failures; (7) new habitat trend of steelhead population data to include most recent spawning survey results; (8) compliance with each pertinent term and condition listed above; (9) progress towards implementing conservation recommendations; and (10) management changes made for current year and recommendations for future years.

Send the completed report to:

National Marine Fisheries Service  
Oregon State Branch Office, Habitat Division  
Attn: 2002/00020  
525 NE Oregon Street, Suite 500  
Portland, OR 97232-2778

### **3. MAGNUSON-STEVENS ACT**

#### **3.1 Background**

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

### 3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA [6 USC 1855(b)] requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or State Activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

### 3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain

impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

### **3.4 Proposed Action**

The proposed action is detailed above in section 1.2. The proposed action is the implementation of the livestock grazing program on BLM-administered lands within the Deschutes Resource Area for 2002. The action area for this consultation includes the mainstem Deschutes River from Pelton Reregulating Dam downstream to its mouth, and all tributaries in that reach which flow through or adjacent to BLM land. Streams within the Lower Deschutes River subbasin are part of the proposed designated EFH for chinook salmon (*Onchorhynchus tshawytscha*) (PFMC 1999). Both spring and fall chinook salmon occur in the Lower Deschutes River subbasin. A description and identification of EFH for salmon is found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of the impacts to chinook salmon EFH from the subject action is based on this information.

The objective of this EFH consultation is to determine whether the implementation of the livestock grazing program on the DRA is likely to adversely affect EFH for chinook salmon in the Lower Deschutes River subbasin.

### **3.5 Effects of the Proposed Action**

Since spring chinook salmon do not spawn or rear in Deschutes River tributary streams which are within or adjacent to BLM-administered livestock grazing allotments addressed in this Opinion, and since fall chinook salmon spawn only in the mainstem Deschutes River and do not rear in the system, implementation of the livestock grazing program on the DRA is not likely to adversely affect chinook salmon EFH.

### **3.6 Conclusion**

NOAA Fisheries believes that implementation of the livestock grazing program on BLM-administered lands in the DRA is not likely to adversely affect proposed designated EFH for chinook salmon in the Lower Deschutes River subbasin.

### **3.7 EFH Conservation Recommendations**

Because the implementation of the livestock grazing program on BLM-administered lands in the DRA is not likely to adversely affect proposed EFH for spring or fall chinook salmon, NOAA Fisheries has no conservation recommendations at this time.

### **3.8 Supplemental Consultation**

The BLM must reinitiate EFH consultation with NOAA Fisheries if the action is substantially revised in a manner that may adversely affect EFH or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR Section 600.920 [k]).

#### 4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion in addition to the BA and additional information requested by NOAA Fisheries and provided by the Prineville BLM District.

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