UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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BIN C15700
Seattle, WA 98115-0070

March 1, 2003

Michael Kulbacki
Area Engineer
Federal Highway Administration
711 Capitol Way South, Suite 501
MS: 40943
Olympia, Washington 98501-1284

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Consultation for State Route 12 Dry Creek Bridge Replacement Project, Walla Walla County, Washington 2002/00938

Dear Mr. Kulbacki:

In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended, 16 U.S.C. 1531, *et seq*. and the Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996, the attached document transmits the National Marine Fisheries Service's (National Oceanic and Atmospheric Administration [NOAA] Fisheries) Biological Opinion (Opinion) and MSA consultation on construction activities necessary for replacement of the State Route (SR) 12 bridge over Dry Creek and realignment of the highway approaches in Walla Walla County, Washington. Construction elements of the subject line project will occur on SR 12 east of the city of Walla Walla, Washington. The Federal Highway Administration (FHWA) determined that the proposed action was likely to adversely affect the Middle Columbia River steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit, and requested formal consultation. NOAA Fisheries concurred with this determination, and initiated formal consultation.

This Opinion reflects the results of a formal ESA consultation and contains an analysis of effects covering Middle Columbia River steelhead in the Walla Walla River basin, Washington. The Opinion is based on information provided in the Biological Assessment and additional information transmitted via telephone conversations, an on-site visit and e-mail. A complete administrative record of this consultation is on file at the Washington Habitat Branch Office.

The NOAA Fisheries concludes that implementation of the proposed project is not likely to jeopardize the continued existence of Middle Columbia River steelhead. In your review, please note that the incidental take statement, which includes Reasonable and Prudent Measures and Terms and Conditions, was designed to minimize take.

The MSA consultation concluded that the proposed project may adversely impact designated Essential Fish Habitat (EFH) for chinook (*O. tshawytscha*) salmon. Specific Reasonable and Prudent Measures of the ESA consultation, and Terms and Conditions identified therein, would address the negative effects resulting from the proposed FHWA actions. Therefore, NOAA Fisheries recommends that they be adopted as EFH conservation measures.

If you have any questions, please contact Diane Driscoll of the Washington Habitat Branch, Ellensburg Field Office at (509) 962-8911 x227.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

Enclosure

cc: Patricia McQueary - WSDOT
Paul Wagner - WSDOT

Endangered Species Act – Section 7 Consultation
Biological Opinion
And
Magnuson–Stevens Fishery Conservation & Management Act
Essential Fish Habitat Consultation

SR 12 Dry Creek Bridge Replacement Project, Walla Walla County, Washington
2002/00938

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Issued by: For Michael R Crouse Date: March 1, 2003

D. Robert Lohn
Regional Administrator

TABLE OF CONTENTS

1.0 INTRODUCTION

This document transmits the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) Biological Opinion (Opinion) and Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) based on our review of a project to replace the State Route (SR) 12 Dry Creek Bridge in Walla Walla County, Washington. The SR 12 Dry Creek Bridge crosses Dry Creek, a tributary to the Walla Walla River, which is a tributary to the Columbia River. Dry Creek is in the Mid-Columbia River evolutionarily significant unit (ESU) for Middle Columbia River (MCR) threatened steelhead (*Oncorhynchus mykiss*). This area has been designated EFH for chinook (*Oncorhynchus tshawytscha*) salmon.

1.1 Background Information and Consultation History

The Federal Highway Administration (FHWA) concluded that the project proposed by the lead agency, Washington State Department of Transportation (WSDOT) was likely to adversely affect MCR steelhead (*O. mykiss*). The existing bridge is considered scour critical and functionally obsolete. The proposed project will replace the existing bridge with a clear span of approximately 80 feet, designed to reduce an existing constriction of the stream channel at the project site.

The objective of the Opinion is to determine whether the proposed action is likely to jeopardize the continued existence of listed species. The Opinion was completed pursuant to the Endangered Species Act (ESA) and its implementing regulations (50 C.F.R. 402), and constitutes formal consultation under the ESA for MCR steelhead. The objective of the EFH consultation is to determine whether the proposed action will adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset those adverse effects.

The document is based on information provided in the Biological Assessment (BA) and subsequent telephone conversations and email correspondence with William Sauriol with WSDOT South Central Region (SCR). Formal consultation was initiated on August 15, 2002 when NOAA Fisheries received a letter and BA describing the project from the FHWA.

1.2 Description of the Proposed Action

The FHWA proposes to fund, in whole or in part, a bridge replacement project to be constructed by WSDOT. The WSDOT proposes to replace the SR 12 overcrossing of Dry Creek, in Walla Walla County, Washington and realign the roadway to remove a substandard curve. The existing 40-foot long by 34-foot wide single-span concrete bridge will be demolished and replaced by an 80-foot long by 40-foot wide (designed for a 100-year flood event) concrete structure in the same location as the existing bridge. Cement weirs within the existing channel will be removed and SR 12 realigned at either end of the bridge to eliminate a substandard curve. A temporary detour bridge will be constructed east (downstream) of the existing crossing to maintain traffic flow during construction.

1.2.1 Worksite Isolation & Handling Fish

Fish removal and salvage from the dewatered portions of Dry Creek will be conducted by Washington Department of Fish and Wildlife (WDFW) biologists or other qualified fisheries biologists. Additionally, fish salvage results will be documented in writing (see attached Appendix 1) and reported to NOAA Fisheries.

To prevent additional fish from moving into the work area, block nets will be installed at up and downstream locations. Block net mesh size, length, type of material, and depth will vary based on site conditions. Generally, block net mesh size is the same as the seine material (approximately one-fourth inch stretched). The upstream net will be installed first. Biologists will then stretch the second net across the wetted channel and walk downstream, “herding” fish out of the work area. Any fish remaining in the work area will be removed using electroshocking techniques described in NOAA Fisheries (NMFS 2000). During fish removal activities, the block nets will be left in place and checked at least once daily to make sure the nets are functioning properly. Monitoring for effectiveness and debris removal will be conducted as necessary. A designated individual will monitor and maintain the nets.

All captured aquatic life will be immediately put in five gallon buckets filled with clean stream water. Water temperatures will be frequently monitored to ensure the specimens are not unduly stressed. Fish will be identified, and enumerated (Appendix 1). After each pass all fish will be released upstream of the work area.

1.2.2 Construction of the Temporary Stream Bypass

After the in-water work area has been isolated and fish removal has been completed, the creek will be redirected through an 80-foot long, four foot diameter corrugated metal pipe (CMP) placed in the stream channel. Revetments and sandbags or concrete ecology blocks (or a similar temporary diversion) will be installed at the upstream end of the bypass inlet to divert the entire flow of the stream into the culvert. A similar revetment will be installed at the downstream end of the bypass to prevent backwater from entering the work area. On or before September 30, 2003 (after bank stabilization work is completed), the bypass culvert, and diversion revetments will be removed from the stream channel.

1.2.3 Demolition of the Existing Bridge

The existing bridge will be demolished using cranes and other heavy equipment. The bridge will be cut into pieces and lifted away from the stream channel. Any falling debris will be collected and removed. Subsequently, a front end loader will be used to collect the debris. Hand-held equipment such as pneumatic hammers or power saws may also be used to complete the removal effort. After bridge demolition and cleanup, the excavated voids will be filled with washed gravel and contoured to match surrounding natural streambed elevations. The revetments and culvert will then be removed and stream flows redirected back to the original channel.

1.2.4 Construction of the New Bridge

Work on the replacement bridge will begin with the construction of a detour bridge. A temporary crossing will be constructed immediately south of the existing structure. The detour bridge will require driving several piles outside the stream channel. The next step will be to build the new bridge substructure. The new bridge will require the construction of abutments on the west and east banks. The new bridge will consist of a single span on spread footings unless the scour depths require the use of piles, with concrete abutments on either bank. Construction of the substructure will include the following:

- Recontouring stream banks (in the area of the bridge) to an approximate two to one slope
- Pouring concrete spread footings to support the new concrete abutments

The new bridge abutments will be set back 15 to 20 feet from the top of the stream banks and constructed of poured-in-place concrete. Since the stream will be contained within a culvert and the new bridge abutments will be out of the channel, contact between the stream and uncured concrete, grout, and cement will be avoided. Any waste water generated during construction of the footings will be pumped to an upland site for infiltration treatment.

Once the replacement substructure is in place, decked girders will be raised onto the substructure with lifting equipment on the banks above the ordinary high water mark (OHWM). The last phases of construction will involve the installation of beam guardrails on the approach roadway and concrete Jersey barriers on the bridge. The new bridge surface area will increase by 351 square feet but coupled with the road realignment the amount of impervious surface will actually decrease by approximately 151 square feet.

The new construction will require approximately 4,000 cubic yards of material for the embankment work, with an additional 5,000 tons of surfacing material. Another 3,000 cubic yards of asphalt concrete pavement will be needed to complete the bridge and road realignment.

1.2.5 Clearing, Grading, Bank Reconstruction, and Revegetation

Approximately 187,308 square feet (4.3 acres) of land will be cleared and graded to facilitate construction of the detour bridge, new bridge, and realignment of the existing roadway. Most of this land, however, presently consists of graveled road shoulders and agricultural fields. One large mature cottonwood on the upstream edge of the existing bridge may be removed during construction. If the mature cottonwood is removed, the rootwad will be used to create instream habitat downstream of the new bridge. After bridge demolition, cleanup, and grading is completed, approximately 770 square feet of disturbed riparian habitat will be replanted with native woody species. Plant materials will consist of native, locally grown stock. Species will include willow stakes, dwarf rose, serviceberry, golden current, blue wild rye, and red osier dogwood. Live willow stakes will be installed over all areas treated with riprap above the OHWM. All disturbed areas will also be hydroseeded with a mixture of native grasses.

1.2.6 Construction of Fish Habitat Structures

Presently, the stream channel contains cement weirs beneath the bridge. These cement weirs will be removed along with the existing abutments when the stream is diverted. To recreate some pool habitat downstream of the bridge approximately 24 rocks (two to four foot diameter) will be placed in the stream according to WDFW (M. Grandstaff, personal communication 2002) instructions to create scour pools and turbulence cover. Additionally, one mature cottonwood that may be removed for the new construction will be placed in the stream channel (with rootwad intact) downstream of the new structure.

1.2.7 Construction of Stormwater Facilities

Presently, stormwater treatment for the existing roadway and bridge consists of vegetated roadside slopes and ditches. The new bridge and roadway will include the same method of treatment.

1.2.8 Timing of Project Activities

Construction is expected to take up to 270 days, with in-water work limited to between July 15 and September 30. Some staging and preconstruction preparation will occur before the start date. On or shortly after July 15, the channel within the work area will be diverted into a culvert. The bridge will then be removed and the abutments, bank stabilization, revetments, and vegetation on the banks will be installed. The creek will be returned to its natural channel by no later than September 30, the earliest date that adult MCR steelhead are expected to begin migrating through the action area. After the stream flow is returned to its natural channel, work will be limited to the construction of the deck, installation of new beam guardrails, construction of stormwater treatment facilities, and other construction activities outside the stream channel.

1.3 Description of 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 C.F.R 402.02). The action area is defined as the stream channel which includes the water, and land (including submerged land) from the footprint of the existing SR 12 Dry Creek Bridge to approximately 300 feet downstream from SR 12 Dry Creek Bridge (see Section 2.1.3.1.2 Water Quality). The action area also includes the adjacent riparian zone within the construction area and all areas affected by the project including staging areas, catch basins, and roadways.

2.0 ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Status of Species and Habitat

The listing status and biological information for the NOAA Fisheries listed species are described in Table 1.

Species (Biological Reference)	Critical Habitat Designation	Listing Status Reference
Steelhead from Washington, Idaho, Oregon and California, (Busby, *et al* 1996).	No critical habitat designated at this time**.**	The MCR ESU is listed as Threatened under the ESA by the NOAA Fisheries, (64 Fed. Reg. 14517, March 25, 1999).

Table 1. References to Federal Register Notices containing additional information concerning listing status, and biological information for listed and proposed species considered in this biological opinion.

The information presented below summarizes the status of species and ESUs that are the subject of this consultation.

Middle Columbia River steelhead were listed as threatened under the ESA on March 25, 1999 (64 Fed. Reg. 14517). In Washington, the MCR steelhead ESU includes summer steelhead in tributaries to the Columbia River above the Wind River in Washington and the Hood River in Oregon upstream to include the Yakima River, Washington (Busby *et al* 1996). Steelhead of the Snake River Basin are not included.

All steelhead in the Columbia River Basin upstream from the Dalles Dam are summer-run, inland steelhead (Busby *et al* 1996). Summer steelhead generally return to freshwater between May and October after spending one or, more commonly, two years in oceanic waters (Busby *et al* 1996, Wydowski and Whitney 1979). Returning steelhead in the Columbia River generally spend an additional year in freshwater before spawning (Wydowski and Whitney 1979). In Washington, most populations begin spawning in February or March (Busby *et al* 1996). Depending on water temperature, steelhead eggs incubate for one and one-half to four months before hatching (61 Fed. Reg. 41542; August 9, 1996). Bjornn and Reiser (1991) noted that steelhead eggs incubate about 85 days at 39.2° Fahrenheit (F) and 26 days at 53.6° F to reach a 50% hatching success rate. In wild populations, juveniles generally migrate to sea at age two, but hatchery conditions permit steelhead to smolt after only a single year (Wydowski and Whitney 1979).

In 1991, Nehlsen *et al* identified six stocks of steelhead within the MCR ESU as at risk of extinction or of special concern. The Walla Walla River stock was identified as of special concern. Several factors have contributed to the decline of MCR steelhead including habitat degradation through grazing and water diversion, over harvest, predation, hydroelectric dams, hatchery introgression, drought and other natural or human induced factors (Busby *et al* 1996). Estimates of historical, pre-1960s abundance for the MCR ESU are available for the Yakima

River only. The estimated pre-1900 run size in the Yakima River is 80,000 to 100,000 with the recent five-year average (1996-2000) of 1,059 wild summer steelhead (Sampson *et al* 2000; WDF and WDW 1993). If we assume that other basins had comparable run sizes for their drainage areas, the total historical run size for this ESU might have been in excess of 300,000. The current natural run size for the MCR ESU might be less than 15 of estimated historical levels. Dam counts of summer steelhead on the Walla Walla River at Nursery Bridge Dam declined 17 per year from 1993 to 1998, with a five year geometric mean abundance of just over 300 fish (Greer 1998, cited in Busby *et al* 1999).

Presently, steelhead are the only anadromous salmonids known to spawn in the Walla Walla River system (Kuttel 2001). Steelhead are found in the Walla Walla River including the North and South Forks and several of their tributaries, Mill Creek and several of its tributaries, Dry Creek, and the Touchet River including the North and South Forks, Wolf Fork, Robinson Fork, Spangler Creek, Lewis Creek, Jim Creek, Patit Creek, and Coppei Creek (Kuttel 2001).

Steelhead begin entering the Walla Walla system as early as September or October but, if necessary, they will delay upstream migration until stream conditions become favorable (Bjornn and Reiser 1991). Peak adult migration occurs in early November but migration timing may vary from year to year depending on weather or flow conditions. Most of the spawning in the Walla Walla River system occurs near the headwaters where riparian vegetation, water temperatures, and gravel are more suitable.

2.1.2 Evaluating the Proposed Action

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 C.F.R. Part 402. NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements of the listed species, and evaluating 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 effects of the action on the species population, distribution and reproduction, the environmental baseline, and any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. Generally, NOAA Fisheries evaluates whether the action, directly or indirectly, will modify the listed species' habitat to the extent that such habitat modification will appreciably reduce the likelihood of both survival and recovery of the listed species in the wild. If NOAA Fisheries concludes that the action will jeopardize the species, it must identify any reasonable and prudent alternatives available.

Recovery planning will help identify feasible measures that are important in each stage of the salmonid life cycle for conservation and survival within a reasonable time. Without a final Recovery Plan, NOAA Fisheries must ascribe the appropriate significance to actions to the extent available information allows. NOAA Fisheries intends that recovery planning identify areas/stocks that are most critical to species conservation and recovery from which proposed actions can be evaluated for consistency under section 7(a)(2).

2.1.2.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. The NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its original decision to list the species for protection under the ESA. Additionally, the assessment will consider any new information or data that are relevant to the determination.

Biological requirements sustain the presence of natural habitat forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation. NOAA Fisheries has related the biological requirements for listed salmonids to a number of habitat attributes, or pathways, in the Matrix of Pathways and Indicators (MPI) (NMFS 1996a). These pathways (water quality, habitat access, habitat elements, channel condition and dynamics, flow/hydrology, watershed conditions, disturbance history, and riparian reserves) indirectly measure the baseline biological health of listed salmonid populations through the health of their habitat. Specifically, each pathway is made up of a series of individual indicators (e.g., indicators for water quality include temperature, sediment, and chemical contamination) measured or described directly (see: NMFS 1996a). Based on the measurement or description, each indicator in the MPI can be classified within a category according to the quality of its functional condition (the "properly functioning condition" (PFC) framework): 1) properly functioning, (2) at risk, or (3) not properly functioning. Properly functioning condition is defined as "the sustained presence of natural habitat forming processes in a watershed that are necessary for the long-term survival of the species through the full range of environmental variation."

The specific biological requirement to be affected by the proposed action will be:
(1) improvement in pool frequency and quality (habitat elements) with the creation of several in-water fish habitat structures, (2) improvements in channel condition and dynamics by removing the channel constricting abutments of the existing bridge, and (3) improvement to habitat access, including migratory access by improving channel dynamics.

2.1.2.2 Environmental Baseline

The environmental baseline represents the present set of basal conditions to which the effects of the proposed action are then added. Environmental baseline is defined as "the past and present impacts of all Federal, State, and private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or informal section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process" (50 C.F.R 402.02). The term "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."

The proposed project is in the Walla Walla River watershed in Walla Walla County, Washington. The Walla Walla River is a tributary to the Columbia River and drains an area of approximately 1,758 square miles with the headwaters in the Blue Mountains and the Palouse Hills. The project area is located along Dry Creek, approximately 15 miles upstream from the confluence with the Walla Walla River (at river mile 29.4). Dry Creek is approximately 35 miles in length and drains an area of approximately 35 square miles (Hancock 2001).

The Dry Creek subbasin is dominated by agricultural land use. The subbasin is characterized by low stream flows (exacerbated by surface water withdrawals), high water temperatures, heavily silted substrates, and many stream reaches altered by diking and/or channelization (Kuttel 2001). Dry Creek has experienced severe channel incision, with some highly unstable areas downcut 40 to 50 feet (Reckendorf 2001).

Agricultural lands comprise 58% of the watershed, while forestland and rangeland cover 25% and 17% respectively (U.S. Army Corps of Engineers 1997). Agricultural activities have seriously degraded salmonid habitat in many areas of the watershed. Practices such as farming to the edge of streams, removing riparian vegetation, filling off-channel areas, diking and channelization, allowing livestock full access to streams, conversion of native perennial vegetation to annual crops, and irrigation have all played roles in habitat degradation (Bureau of Reclamation 2001; U.S. Army Corps of Engineers 1997; Mendel *et al* 2001; Saul *et al* 2001).

The major limiting factor throughout the Walla Walla subbasin appears to be water diversions and withdrawals, which apparently are resulting in low stream flows and fish kills. The WDFW estimates that less than 10% of surface water diversions in the Washington portion of the basin meet state or Federal juvenile fish screening criteria (Kuttel 2001). Bireley (2001) reported that more than 75% of the diversions identified in the Cooperative Compliance Review Program (CCRP) are in streams used for salmonid spawning, rearing, and migration. The high incidence of noncompliant surface water diversions is a serious threat to Federally listed juvenile salmonids. Furthermore, it is likely that the diversions identified in the CCRP may represent only 50% to 60% of surface water diversions currently in use in the Washington portion of the basin. At least 21 irrigation diversions on Dry Creek are known to be in use.

Stream habitats within the action area include a mix of glides and low gradient riffles. The only pool within approximately 200 feet of either side of the project area is created by the bridge scour. Available refugia and off-channel habitat is limited in the action area because of channel entrenchment and constriction. Woody vegetation in the action area is sparse and generally of a small diameter. Riparian vegetation consists of a narrow band of locust, willow, black cottonwood, serviceberry, and reed canarygrass. In terms of the MPI indicators (NMFS 1996) the action area is considered "not properly functioning" or "at risk" relative to all habitat attributes.

2.1.2.4 Factors Affecting Species Environment within Action Area

Overall, the baseline conditions in the Walla Walla subbasin are degraded. As stated above, none of the habitat indicators are properly functioning in the action area.

Both legal and illegal water withdrawals for irrigation have significantly reduced water quantity in the Walla Walla River and its tributaries. The stream channel within the action area is characterized by a lack of off-channel habitat, few wetlands, and streamflow regimes with high winter peaks and low summer flows (and associated high temperatures). Narrow, incised channels, flat gradients, and low flows have conspired to create poor conditions for fish including isolated pools and stagnant flows. Off-channel habitats are nearly nonexistent along the reach because of severe channel incision (Kuttel 2001).

Some sections in the Lower Walla Walla subbasin (including Dry Creek) have been designated as water quality limited under Section 303(d) of the Clean Water Act because of elevated temperatures and pollution. As of 1984, 252,000 tons/year of fine sediment were delivered from cropland to streams in the Dry Creek subbasin. For comparison, forestlands delivered 354 tons per year (USDA SCS *et al* 2001). Water temperatures can exceed 70°F in summer months near the project area (D. Karl, personal communication 2001).

Agricultural land uses, urban and rural development, and roads have altered channel condition and dynamics in the basin (Kuttel 2001). The river banks in the action area are steep and unstable and support only isolated, narrow strips of riparian vegetation. Streambank conditions and floodplain connectivity in the action area are degraded by bank armoring, levees, channelization, and other flood control measures. Stream buffers are narrow, most woody vegetation is immature, and recruitment potential is poor.

2.1.3 Effects Of the Proposed Action

The proposed replacement of the SR 12 Dry Creek Bridge is likely to adversely affect MCR steelhead as determined by the FHWA. The segment of Dry Creek flowing through the action area provides rearing habitat for juvenile steelhead, and is a corridor for steelhead migration between the Walla Walla River and spawning habitat in the Dry Creek headwaters.

The ESA implementing regulations define "effects of the action" as "the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline." Indirect effects are those caused by the proposed action, are later in time, but are still reasonably certain to occur (50 C.F.R. 402.02).

The proposed project will replace an existing bridge with a design that improves channel dynamics and water flow. As such, the primary adverse effects of the project are the direct effects of the construction activities required to replace the existing bridge.

2.1.3.1 Direct Effects

Direct effects are the immediate effects of the project on the species or its habitat. Direct effects result from the agency action and include the effects of interrelated actions and interdependent actions. Future Federal actions that are not a direct effect of the action under consideration (and not included in the environmental baseline or treated as indirect effects) are not evaluated.

Juvenile and adult steelhead may inhabit the action area during the proposed construction periods. Generally, the direct effects are related to the duration of construction activities in or adjacent to Dry Creek. The negative effects associated with the proposed project are likely to be short in duration and will be minimized through use of specific construction techniques and restrictions in timing and duration of construction.

2.1.3.1.1 Worksite Isolation and Handling Fish

To reduce the likelihood of exposing fish to construction activities, the project includes a series of techniques to isolate the worksite from fish presence. These include physically blocknetting the work area to move fish away, capture and moving residual fish observed in the blocked work area, and then electrofishing to locate any remaining fish. Although these techniques are intended to reduce the number of fish that will encounter construction effects, each of these activities can injure or kill fish. However, the proposed action includes measures intended to reduce, if not avoid the likelihood of harming steelhead.

The temporary diversion of the creek through a culvert will cause a short loss of benthic invertebrate habitat. Benthic invertebrates inhabit the stream bottom. Therefore, any modification of the streambed (temporary dewatering or disturbance) will have an affect upon the benthic invertebrate community. The biological effect of episodic inputs has generally been found to be temporary. Rapid recovery in the action area is expected by invertebrate drift from upstream reaches. Based on the timing of the activity, temperature and stream flow, invertebrate recolonization could occur within two weeks after completion of instream activity (Allan 1995; Waters 1995). As a result, it will be difficult, if not impossible to attribute any harm to steelhead from the temporary loss of benthic habitat.

Isolating the work area and temporarily diverting the creek can strand juvenile steelhead. Furthermore, fish handling can increase plasma levels of cortisol and glucose in fish (Hemre and Krogdahl 1996, Frisch and Anderson 2000). Furthermore, when poorly done, electrofishing can injure or kill juvenile or adult steelhead. Physical injuries from electrofishing include internal hemorrhaging, spinal misalignment, or fractured vertebrae. Also, the diversion of water through a culvert past the isolated work area could impede the movement of steelhead for up to 10 weeks. To address these effects, the project proponent proposes several measures. As a threshold matter, the project is timed to avoid interactions with steelhead during migration and restricting construction activities to the period of July 15 to September 30, prior to adult steelhead migration and spawning and after downstream smolt migration. Best management practices incorporated into the project include capture and relocation of fish that are not moved from the work area by the initial blocknetting. Thereafter, electrofishing will locate fish that could not be observed during blocknetting. To reduce or avoid the possibility of harm from electrofishing, the project proponent will adhere to NOAA Fisheries electrofishing guidelines (NMFS 2000) and by using a qualified biologist to ensure the safe capture, handling, and release of fish. Finally, in the unlikely event that migrating fish are present during the time the worksite is isolated, the bypass culvert through which the diverted stream will flow around the work area will be sized to ensure fish passage.

2.1.3.1.2 Water Quality

The project includes construction activities (grading, excavation, installation of dewatering barriers, and culvert, and the back-filling and removal of the temporary construction area) that could cause short-term increases in turbidity and sediment deposition during construction. Deposition of fine sediment can significantly degrade instream spawning habitat, reduce survival of steelhead from egg to emergence (Phillips *et al* 1975), reduce intergravel cover (Spence *et al* 1996), and reduce the productivity of benthic organisms as food for fish. Suspended sediments can cause sublethal effects such as elevated blood sugars and cough rates (Servizi and Martens 1992), physiological stress, and reduced growth rates. Elevated turbidity levels can reduce the ability of salmonids to detect prey, cause gill damage (Sigler *et al* 1984, Lloyd *et al* 1987), and cause juvenile steelhead to leave rearing areas (Sigler *et al* 1984). Additionally, short-term pulses of suspended sediment have been shown to influence territorial, gill-flaring, and feeding behavior of salmon under laboratory conditions (Berg and Northcote 1985).

The project incorporates measures to reduce, if not avoid these effects, including restricting timing and duration of construction, and the use of temporary erosion and sediment control measures. Construction methods will ensure that turbidity will not extend beyond 100 feet downstream of the project area for flows up to 10 cubic feet per second (cfs) at time of construction (the expected flow is less than 10 cfs), for 10-100 cfs distance will not exceed 200 feet and for flows greater than 100 cfs the mixing zone will not exceed 300 feet downstream of the activity as described in WAC-201-100 and WAC-201-110 (WDOE 1997). The use of a mixing zone is intended for brief periods of time (a few hours or a few days) and is not intended as authorization to exceed turbidity standards for the duration of the project. Additionally, a mixing zone is only allowed after the implementation of appropriate best management practices to avoid or minimize disturbance of sediment. It is expected that steelhead present during construction will seek refugia or will avoid portions of the stream with temporarily elevated turbidity levels. Additionally, any deposition within the action area will be flushed out either when flow is reestablished or during the next high flow event (rain or snowmelt). Numerous studies have indicated that benthic invertebrates are reduced by deposited sediment, but drift from upstream rapidly recolonized the affected area (Barton 1977; Reed 1977; Chisolm and Downs 1978; Waters 1995). The temporary increase in turbidity will not be additive to the environmental baseline over the long-term.

2.1.3.1.3 Disturbance of Streambed

The project includes placement of dewatering barriers, temporary culverting of the stream channel, demolition of the existing bridge, removing debris from within the OHWM, and installing fish habitat structures. Each of these activities can disturb the substrate of Dry Creek. Work within the stream channel is likely to mobilize existing sediment and displace benthic fauna in the immediate area. Impacts of increased turbidity and sediment deposition are discussed under Section 2.1.3.1.2 (Water Quality, above). Additionally, the use of heavy equipment in the riparian areas and within the streambed might cause compaction of soils resulting in reduced infiltration at the project site. Such compacting decreases the stability of the banks, and reduces recruitment of riparian vegetation, which results in increased deposition of fine sediments into the river.

While it is unlikely that the instream work will affect spawning habitat long-term (no spawning habitat has been observed at the project site), instream work with mechanical equipment may harm fish by homogenizing the substrate and temporarily reducing the diversity of benthic habitat in the riverbed. The importance of the trophic relationship between benthos and fish productivity has been recognized and researched extensively. Minshall (1984) pointed out that benthos abundance is least in homogeneous sand or silt or in large boulders and bedrock; abundance is greatest in the mixture of heterogeneous gravel, pebbles, and cobbles.

To minimize the disturbance of the streambed, the contractor will stay within the designated work area and access routes. The bridge deck will be cleaned of aggregate or earth materials prior to bridge removal. Bridge demolition will be performed in a manner consistent with the above-mentioned criteria for water quality. As much of the bridge as possible will be dismantled or mechanically cut into easily transported sections and lifted vertically and away from the project area. Bridge parts that cannot be mechanically removed may be broken into large sections and dropped into the stream channel after streamflow has been diverted. These sections will be as large as can safely be handled and will be removed immediately after they have been dropped. Removal of the footings will be accomplished by mechanical means. No blasting is authorized. Upon completion of the bridge demolition and removal of the footings, the excavated voids will be filled with clean washed gravels and contoured to match the surrounding natural streambed elevations to ensure turbidity upon release of flow in the creek channel is minimized and meets the water quality criteria described above. Presently, as a result of bridge scour a pool complex has formed beneath the bridge. Removal of the footings will result in a loss of this pool habitat. The project includes replacement of pool habitat by carefully placing clusters of large rock downstream of the new bridge so as to not increase turbidity and to add an element of channel roughness that currently does not exist. Mechanical equipment for bridge removal and placement of boulders for fish habitat will be done from the streambanks, and heavy equipment will be limited to that with the least adverse effects on the environment. Therefore, removal of the old bridge footings and abutments along with placement of rock clusters and gravels should result in long-term improvements in streambed conditions within the action area.

2.1.3.1.4 Removal of Riparian Vegetation

The project involves some removal of existing riparian vegetation. Like most of the Lower Walla Walla subbasin, the action area exhibits poor riparian conditions (Kuttel 2001). In most areas of the watershed woody debris has been removed and riparian vegetation has been removed to the streambank to allow expansion of agricultural activities. Directly downstream of the bridge footprint, cultivated fields are found up to the edge of the channel. Therefore, the project incorporates a plan to replant native vegetation and ensure continuation of the processes that create riparian habitat within the action area.

Riparian vegetation links terrestrial and aquatic ecosystems, influences channel processes, governs the influx of light and organic matter to streams, strengthens streambanks, and modifies water temperatures (Sullivan *et al* 1987; Gregory *et al* 1991). Removal of existing vegetation may result in increased water temperatures that will further degrade already impaired water temperatures in the action area. Elevated water temperatures may adversely affect salmonid physiology, growth and development, alter life history patterns, induce disease, and may exacerbate competitive predator-prey interactions (Spence *et al* 1996). Loss of vegetation also may reduce allochthonous inputs to the stream. Streamside vegetation provides large quantities of organic matter when leaves, needles, and woody debris fall or blow into the stream. Leaves and needles usually contribute most of the readily usable organic matter in streams.

In areas of temporary fill, vegetation will be mowed or otherwise treated to retain root structure thereby increasing soil stability and promoting rapid reestablishment of vegetation. The revegetation plan extends approximately 60 feet upstream and 40 feet downstream of the new structure (the WSDOT right-of-way). Soil and willow fascines placed within the riprap-providing in-kind replacement of riparian function within the first growing season- will minimize short-term adverse affects. Planting of native species such as golden currant, dwarf rose, red osier dogwood, coyote willow, serviceberry, rabbit brush and bitter brush will use two gallon potted stock planted three foot on center from the from the channel upslope to the top of the terrace. The revegetation activities will increase the length of streambank providing riparian shading and allochthonous inputs and provide a greater total vegetated area compared to existing conditions. The result will be a long-term improvement in riparian structure and function within and adjacent to the action area.

2.1.3.1.6 Interrelated and Interdependent Effects

This project consists of the replacement of the existing substandard bridge with a new two lane bridge that meets current safety and load requirements. This is an in-kind replacement that will not cause changes in traffic patterns or traffic volumes. Consequently, there are no interrelated or interdependent actions that need to be analyzed as part of the project.

2.1.3.2 Indirect Effects

Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the area directly affected by the action. Indirect effects might include other Federal actions that have not undergone section 7 consultation but will result from the action under consideration. These actions must be reasonably certain to occur, or they are a logical extension of the proposed action.

2.1.3.2.1 Impervious Surface & Stormwater Facilities

The project will include adding some new road surface in the area of the new bridge. There are several adverse effects associated with adding impervious surface such as roads to a watershed. Runoff processes influence quantity, quality, and timing of surface and subsurface flow. Water routing influences riparian vegetation, nutrient inputs, and stream productivity. Runoff from paved surfaces can contain oil, grease, antifreeze, pesticides and other pollutants harmful or lethal to aquatic organisms. If runoff from impervious surfaces is allowed to flow directly into natural water systems, steelhead can be negatively affected by reducing invertebrate diversity and density, degrading water quality, water temperature, and/or altering the hydrology of stream habitat. Stormwater treatment facilities and other techniques can reduce the adverse affects of those changes if they are incorporated into the project.

The Walla Walla subbasin, including the Dry Creek watershed, has a relatively low-density road network and the bridge replacement will not increase the road density in the watershed. The proposed project will not add impervious surface to the action area, and the proposed stormwater treatment will avoid or minimize adverse changes in hydrology by maintaining stormwater treatment facilities designed to treat the runoff generated from the project. Existing grass lined ditches that slow runoff and promote infiltration are adequate to treat estimated runoff. Treatment of runoff through infiltration sites will minimize disruption of the hydrology of the system, and remove pollutants and fine sediments.

2.1.3.2.2 Changes in Fluvial Transport, Channel Morphology, and Complexity

The existing bridge constricts the channel and contributes to channelization. The complete removal of the existing bridge and its replacement with a longer, singlespan structure will improve the transport of sediment and large woody debris, which is important in the formation of diverse habitats. Although the new structure will not specifically cause streambed aggradation and reconnection to the floodplain, it will remove the negative affects of the old structure. The new bridge will also be higher than the existing bridge and will pass the 100 year flood. Overall the project will result in minor improvements in fluvial transport, channel morphology, and stream habitat complexity in the action area.

Channels that have been unaffected by human activities retain suitable water temperatures for the organisms that have evolved in that location. Such channels will have adequate shading, good cover for fish, minimal temperature variations and abundant organic matter input such as leaves, twigs and wood. In contrast, channelized streams tend to have increased water temperatures, less shading from trees, little cover for fish, greater fluctuations in stream temperature and less organic matter input. Natural channels have diverse habitats with varying water velocities as the morphology changes between riffles and pools. The sediment on the channel bottom is sorted and provides many microhabitats for organisms. In contrast, straightened channels tend to consist mostly of riffles and have unsorted gravels that limit the types of habitat available. The diverse nature of natural channels provides resting areas and slow water refugia during high flow. With less structural diversity, channelized systems have minimal resting areas and organisms are easily swept away during high flows. In low flow periods, natural channels have sufficient water depth to support fish and aquatic species during the dry season. On the other hand, channelized systems may have insufficient depth to sustain required temperatures and dissolved oxygen to sustain life.

To address some of the physical habitat issues created by the old bridge, the new bridge is designed with measures to account for structure and complexity. In stream habitat complexity will be enhanced by placing approximately 24 boulders, two to four feet in diameter, in the stream channel to create fish habitat. At the present time the only pool habitat within 200 feet of the bridge is a result footing scour. Boulders can create stable stream structure and diverse habitat in the absence of large woody debris, and boulder-rich streams can continue to support good populations of salmonids if debris is lost (Hicks *et al* 1991). Boulders in the stream channel will create scour pools and turbulence. These factors are useful to steelhead for resting areas and cover, respectively. Cover is an important, but difficult to define, aspect of salmonid habitat in streams. Cover provides security from predation for fish and allows them to occupy portions of streams that they might not use otherwise. Addition of 24 large boulders into Dry Creek will not make the stream "boulder-rich." However, it will increase the habitat complexity of the stream within the action area.

2.1.4 Population Trends and Risks

Both long and short-term trends in abundance of naturally spawning steelhead are declining in the MCR ESU as a whole (Busby *et al* 1999). Especially severe declines occur on the Walla Walla River at Nursery Bridge Dam, where the numbers of summer steelhead have been decreasing by almost 17 per year from 1993-1998 (Greer 1998, cited in Busby *et al* 1999). Short-term trends (1987-1997) in summer steelhead abundance on John Day River tributaries range from 1 to 21 declines per year. The greatest declines in abundance over the past 10 years have occurred on the mainstem of the John Day river (21) and on the Deschutes River at Sherrars Falls (12) (Busby *et al* 1999; Table 7).

Results of decline analysis for the MCR steelhead ESU overall indicates a median population growth rate (lambda) over the base period ranges from 0.88 to 0.75, declining as hatchery fish reproduction increases (McClure *et al* 2000, Table B-1). NOAA Fisheries also estimated the percent increase in lambda required to reduce the risk of a 90 decline in 48 years ranges from zero percent for the Yakima River stock to12 for the Deschutes River stock, assuming no hatchery fish reproduction. If hatchery fish are assumed to reproduce at the same rate as wild fish the percent increase required to prevent a 90 decline in 48 years ranges from 0 percent for the Yakima River stock to 32 for the Deschutes River stock (McClure *et al* 2000, Table B-9).

Extensive habitat blockages, water diversions, altered water flow and temperature regimes, and the resulting loss of spawning and rearing habitat for steelhead in the MCR ESU have combined to result in a powerful threat to its persistence. At least two extinctions of steelhead populations have been documented in this ESU (in the Crooked and Metolius Rivers), and the continuing declines in extant populations both with and without hatchery influence are a source of concern.

In the short-term the proposed action will have construction-related adverse affects on water quality, in-stream habitat, and riparian reserves. In the long-term, however, the project will result in incremental, beneficial affects to floodplain connectivity, in-stream habitat, and riparian reserves. Additionally, the timing and duration of in-stream work activities will minimize the affects on MCR steelhead. Therefore, the proposed action is unlikely to negatively influence population trends or risks in the action area.

2.1.5 Cumulative Effects

Cumulative effects are defined 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" (50 C.F.R. 402.02). Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Two other bridges on Dry Creek are currently planned for replacement within the next five years. Walla Walla County is preparing plans to replace the bridge on Aldridge Road bridge and has just completed consultation for replacement of the Valley Grove Bridge. These projects are designed to replace old bridges (with abutments located in the active creek channel) with newer designs that span the floodplain. Consequently, these projects will also result in improvements in the fluvial transport and channel morphology of Dry Creek.

In the action area for this project, agricultural activities are the main land use. Riparian buffers are not properly functioning, containing little woody vegetation. Agricultural practices leave little stream buffer width. NOAA Fisheries assumes that non-Federal land owners in those areas will also take steps to minimize or avoid land management practices that will result in the take of MCR steelhead. Such actions are prohibited by section 9 of the ESA.

2.1.6 Conclusion

NOAA Fisheries has determined that the effects of the proposed action will not jeopardize the continued existence of MCR steelhead. Jeopardize the continued existence of the species means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. The proposed action consists of construction activities that will affect steelhead and their habitat. The action also consists of measures that lower the likelihood that any of the project affects will kill or injure individual fish. Furthermore, the new structure is designed to alleviate the detrimental affects of the existing structure and enable improved function of certain habitat creating processes at and near the construction site.

Construction activities include isolating the worksite from the stream and techniques to remove residual fish from the work area. These measures will temporarily interrupt the functional processes of the stream channel at the worksite, and fish removal techniques can injure or kill individuals. However, isolating the worksite ensures no fish will experience the adverse affects of in-channel work, and the handling techniques are intended to further reduce the stressful affects of capture and removal. Furthermore, project timing is confined to the time of year when the least number of fish are likely to be present in the action area, diminishing potential harm as a threshold matter. Finally, the action calls for the use of BMP to address the likelihood and extent that construction will affect steelhead. These practices include: 1) timing restrictions related to in-water construction will minimize impacts to fish and their habitat, 2) replacement of a longer bridge will improve channel morphology and passage conditions for all life stages of salmonids, 3) placement of 24 boulders into the stream channel will create pool habitat providing cover and resting areas for all aquatic species.

The new bridge will slightly increase the amount of over-water structure above Dry Creek, but will not increase the amount of impervious surface and will marginally improve the current degraded condition of Dry Creek. This conclusion is based on the factors listed above. NOAA Fisheries concludes that the proposed action is not likely to impair properly functioning habitat or appreciably reduce the functioning of already impared habitat. Furthermore, NOAA Fisheries concludes that the proposed action is unlikely to adversely influence existing population trends or risks in the action area. Therefore, the proposed action is not likely to appreciably reduce MCR steelhead numbers, reproduction, or distribution.

2.1.7 Reinitiation of Consultation

NOAA Fisheries conducted the foregoing analysis and developed the foregoing conclusion based on the description of the proposed action, including measures to reduce and avoid effects on MCR steelhead. This analysis also frames the assessment of the amount or extent of take presented below. Should the project not be conducted as described, and should any of the below-stated criteria be triggered, the action agency will be responsible for reinitiating consultation.

Consultation must be reinitiated if the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16). At the request of reinitiation, the protective coverage of Section 7(a)(2) will lapse.

2.2 Incidental Take Statement

Section 9 of the ESA and Federal regulation pursuant to Section 4(d) of the Act prohibit the take of endangered and threatened species without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct (50 C.F.R. 217.12). Harm is further defined as significant habitat modification or degradation that results in death or injury to listed species by “significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering” (50 C.F.R. 222.102). Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or 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 is 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.

The measures described below are largely restated from the description of the proposed action. They are restated here in the incidental take statement to ensure that the action agency is aware that they are non-discretionary. For the exemption in Section 7(o)(2) to apply, they must be implemented by the action agency so that they become binding conditions of any grant or permit issued to the applicant as appropriate. The action agency has a continuing duty to regulate the activity covered in this incidental take statement. If the action agency fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. The take statement 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 to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of Take Anticipated

As stated in Section 2.1.3, above, MCR steelhead use the Action Area for juvenile rearing and migratory purposes. While effects on this ESU can be minimized and even avoided by timing construction activities for periods of low presence, MCR steelhead can be encountered in the Walla Walla River throughout the year. Therefore, incidental take of these listed fish is reasonably certain to occur. The proposed action includes measures to reduce the likelihood and amount of incidental take. As stated above, these measures have been restated in the Terms and Conditions below, to ensure the action agency understands they are mandatory.

Take is likely to result through "harm" (habitat modification; see 50 C.F.R. 222.102) caused by construction, and through activities used to move fish during worksite isolation. For habitat affecting activities, NOAA Fisheries cannot estimate a specific amount of incidental take of individual MCR steelhead, despite the use of the best scientific and commercial data available. As a surrogate for estimating the number of fish harmed by the construction activities, NOAA Fisheries has estimated the extent of habitat affected by those activities. The estimated extent of habitat affected serves as the threshold for reinitiating consultation. For water quality effects, take is authorized for turbidity increases within 100 feet downstream of the project area (for flows up to 10 cfs, the expected level) or 200 feet if flows exceed 100 cfs (WDOE 1997). For streambank stabilization, the extent of authorized take is that which could result from up to 700 feet of stabilization. For worksite isolation and temporary river diversion, the extent of take authorized is that which could occur from the temporary diversion of up 80 feet of Dry Creek.

Harm from worksite isolation techniques can be estimated in terms of numbers of fish affected. For take from electrofishing techniques, the extent of take authorized is two fish (NMFS 2002a, 2002b). An estimate of the number of listed fish expected to be encountered during worksite isolation was obtained using the results of similar fish removal activities in Dry Creek and the Walla Walla River in August 2002 (NMFS 2002a, 2002b).

Table 1. Estimate of nonlethal and lethal take associated with proposed project requiring isolation of an in-water work area and electrofishing to collect and remove fish.

Species	Life stage	Estimated Total catch	Nonlethal Take of ESA listed fish	Lethal Take of ESA listed fish
MCR steelhead	juvenile	20	18	2

NOAA Fisheries will update this estimate of incidental take before March 31 each year after reviewing information from the preceding year describing isolation of in-water work area operations. Because of the timing of the in-water work period, capture and release of adult fish is not expected to occur as part of the proposed isolation of in-water work areas. Thus, NOAA Fisheries does not anticipate that any adult fish will be taken.

Should any one of these limits be exceeded, construction must stop and the action agency must reinitiate consultation.

2.2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize take of MCR steelhead. These RPMs reflect measures described as part of the proposed action in the BA and the foregoing Opinion. NOAA Fisheries has included them here to ensure the action agency is aware that they are mandatory.

To minimize incidental take, FHWA will ensure the effective administration of the conservation BMPs, RPMs and Terms and Conditions (T&Cs) included in this Opinion.

1. FHWA will ensure minimization of incidental take from isolation and fish handling activities.

2. FHWA will ensure minimization of incidental take from in-water construction activities by restricting the timing, duration, and extent of construction within the OHWM.

3. FHWA will ensure minimization of incidental take from construction activities near the stream by minimizing the risk of effects from erosion and water pollution.

4. FHWA will ensure minimization of take from effects on riparian and instream habitat.

2.2.3 Terms and Conditions

To comply with ESA section 7 and be exempt from the prohibitions of section 9 of the ESA, the FHWA must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These T&C largely reflect measures described as part of the proposed action in the BA and the foregoing Opinion. NOAA Fisheries has included them here to ensure the action agency is aware that they are non-discretionary.

1. To implement RPM No. 1 (isolation and fish handling), the FHWA will ensure that the following requirements are fully implemented.

   a. Probability of encountering listed fishes will be reduced to the maximum extent possible by conducting in-water construction only within the approved fish work window of July 15 to September 30. Any additional extensions of the in-water work period must be coordinated with NOAA Fisheries and WDFW.

   b. The work area will be well isolated from the flowing stream using the measures described in the BA.

   c. Any listed fish that may be trapped within the isolated work area will be captured and released using appropriate methods, including supervision by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed species.

   d. The capture team must comply with NOAA Fisheries' electrofishing guidelines (NMFS 2000 http://www.nwr.noaa.gov/1salmon/salmesa/4docs/final4d/electro2000.pdf).

e. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during capture and transfer procedures to prevent the added stress of out-of-water handling.

f. Captured fish must be released outside of the isolated work area, as near as possible to the capture area.

g. ESA-listed fish that die during the project may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

h. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the capture team's capture and release records and facilities.

i. All take of listed salmonids during work area isolation must be documented and reported using the format attached in Appendix 1. FHWA will ensure that NOAA Fisheries receive the monitoring reports of take within one month beginning when the initial work area isolation activities commence until in-water construction activities cease. The reports will be sent to NOAA Fisheries, Attention: Diane Driscoll, 510 Desmond Drive SE, Suite 103, Lacey, WA 98503. All salmonid carcasses will be collected and delivered to NOAA Fisheries to be identified, at FHWA's expense.

2. To implement RPM No. 2 (construction within the OHWM) above, the FHWA will ensure that:

a. All work within the active channel of Dry Creek will be completed between July 15 and September 30. Extensions of the in-water work period will be coordinated with NOAA Fisheries and WDFW.

b. All water intakes used for the project, including pumps used to dewater work areas, will have fish screens installed, operated, and maintained according to NOAA Fisheries' fish screen criteria. (NMFS 1996b http://www.nwr.noaa.gov/1hydrop/pumpcrit1.htm).

c. All equipment used for in-water work will be cleaned prior to entering the active channel of Dry Creek. External oil and grease will be removed. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

d. Stationary power equipment operated within 150 feet of any stream or wetland will be protected to prevent leaks.

e. Material removed during excavation will only be placed in a manner that prevents it from eroding back into the channel.

f. Measures will be taken to prevent construction debris from falling into the stream or riparian area. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

3. To implement RPM No. 3 (construction activities adjacent to stream), the FHWA will ensure that:

   a. All temporary erosion and sediment control (TESC) and pollution control measures included in the BA are included as provisions in the contract. The TESC plan will outline how and to what specifications various erosion control devices will be installed to meet water quality standards, and will provide a specific inspection protocol and time response. The TESC plan will address access roads, stream crossings, construction sites, equipment and materials storage sites, fueling operations, staging areas, cement, mortars and bonding agents, hazardous materials, spill containment and notification, construction debris, and inspection and placement of erosion controls. Erosion control measures will be sufficient to ensure that water quality standards conditions do not negatively impact MCR steelhead. The TESC plan will be maintained on site and will be available for review upon request.

   b. The Contractor will develop an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP) and is responsible for the containment and removal of any toxicants released.

   c. TESC measures are in-place at all times during the contract. Construction within the project vicinity will not begin until all temporary erosion controls (*e.g.*, sediment barriers and containment curtains) are in place. Erosion control structures will be maintained throughout the life of the contract.

   d. Boundaries of clearing limits associated with site access and construction will be marked to minimize disturbance of riparian vegetation and other sensitive sites.

   e. Areas for fuel storage, refueling, and servicing of construction equipment and vehicles will be at least 150 feet from the stream channel and all machinery fueling and maintenance will occur within a contained area. Fueling large cranes, pile drivers or drill rigs may occur within 150 feet with full containment systems in place and notification of the project engineer, WSDOT environmental staff, and NOAA Fisheries. Overnight storage of vehicles and equipment must also occur in designated staging areas.

   f. No surface application of nitrogen fertilizer will be used within 50 feet of any water of the state of Washington.

4. To implement RPM No. 4 (riparian and in-stream habitat protection), the FHWA will ensure that:

   a. Alteration of native vegetation will be minimized. Vegetation will only be grubbed from areas undergoing permanent alteration. No grubbing will occur in areas slated for temporary impacts.

b. Disturbed soils, including riparian vegetation will be replaced with a native seed mix, shrubs, and trees. All disturbed riparian areas will be replanted with native woody species at the planting density outlined in the BA.

c. Riprap used for protection of bridge abutments will be clean, the minimum possible size, and will be "placed" not dumped. Bank stabilization design will follow the Integrated Streambank Protection Guidelines (ISPG) as much as possible (WDFW and Inter-Fluve 2002).

d. Areas of riprap (bridge abutments) will be backfilled with soil and planted with species capable of rapid regeneration as described the BA planting plan (*e.g.*, willow fascines).

e. Heavy equipment will be limited to that with the least adverse effects of the environment, *e.g.*, minimally sized vehicles.

f. Vehicles and machinery must cross riparian areas and streams at right angles whenever possible.

5. To implement RPM No. 6 (monitoring), the FHWA will ensure that:

a. NOAA Fisheries, Washington Habitat Branch, receive in-water construction monitoring reports as described in T&C 1.i.

b. Erosion control measures as described above in RPM No. 3 and 4 will be monitored.

c. A temperature monitoring program as outlined in the BA to establish baseline conditions is carried out.

d. All riparian plantings will be monitored yearly for three years to ensure that finished grade slopes are at stable angles of repose and that woody plantings are achieving a minimum of 80% cumulative survival.

e. If the success standard specified above in RMP 5.d is not achieved, dead plantings will be replaced to bring the site into conformance. If failed plantings are deemed unlikely to succeed, replacement plantings will be conducted at other appropriate locations in the project area.

f. By December 31 of the year following the completion of construction, the FHWA will submit a monitoring report with the results of the monitoring required in terms and conditions 6.a and 6.b above. Send report to NOAA Fisheries, Attention: Diane Driscoll, 510 Desmond Drive SE, Suite 103, Lacey, WA 98503.

g. In each of the two years following completion of construction, the FHWA will submit to NOAA Fisheries (Washington Branch) a monitoring report with the results of monitoring requirements of 6.d above. Send report to to NOAA Fisheries, Attention: Diane Driscoll, 510 Desmond Drive SE, Suite 103, Lacey, WA 98503.

3.0 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

1. 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 (§305(b)(2));

2. NOAA Fisheries must provide conservation recommendations for any Federal or State activity that may adversely affect EFH (§305(b)(4)(A));

3. Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must 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 must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: 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 C.F.R. 600.110). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 C.F.R. 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action will adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Federally-managed Pacific salmon: chinook, 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 1999), 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, in part, on this information.

3.3 Proposed Actions

The proposed action and action area are detailed above in Sections 1.3 and 1.4 of this document. The action area includes habitats that have been designated as EFH for various life-history stages of chinook.

3.4 Effects of Proposed Actions

As described in detail in Section 2.1.3 of this document, the proposed action may result in detrimental short-term impacts to a variety of habitat parameters. These adverse effects are:

1. Short-term degradation of benthic foraging habitat because of the temporary diversion of approximately 80 linear feet of the stream channel through a CMP.

2. Short-term degradation of water quality in the action area because of an increase in turbidity related to construction activities, creation of in-water fish structures and potential contaminants during construction.

3. Short-term degradation of riparian habitat because of temporary loss of approximately 700 square feet of riparian vegetation.

3.5 Conclusion

NOAA Fisheries believes that the proposed actions may adversely affect EFH for chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions that will adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the BA will be implemented by the WSDOT, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. Consequently, NOAA Fisheries recommends that the FHWA ensure that WSDOT implement the following conservation measures to minimize the potential adverse effects to EFH for chinook salmon:

1. Adopt T&C 3.a as described in Section 2.2.3, to minimize EFH adverse affects to benthic foraging habitat.

2. Adopt T&C 4.a, and 4.c through 4.h, as described in Section 2.2.3, to minimize EFH adverse affects to water quality.

3. Adopt T&C 3.b, 4.b, 5.a through 5.c, 6.c and 6.d as described in Section 2.2.3, to minimize EFH adverse affects to riparian habitat.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 C.F.R. 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if the proposed 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 C.F.R. 600.920(k)).

APPENDIX 1

In-Water Construction Monitoring Report
SR 12 Dry Creek Bridge Replacement (HCD/NWR/2002/00938)

Start Date: ________________
End Date: ________________ Water temperature :___________

Waterway: Dry Creek, Walla Walla County
Construction Activities:

____
____
____
____
____

Number of fish observed: ___________
Number of salmonid juveniles observed (what kind?): ___________________________________
Number of salmonid adults observed (what kind?):______________________________________
____

What were fish observed doing prior to construction?____________________________________
____
____

What did the fish do during and after construction? ____________________________________
____
____
____

Number of fish stranded as a result of this activity: __________

How long were the fish stranded before they were captured and released to flowing water?
____
____
____

Number of fish that were killed during this activity: __________

Send report to:
Attention Diane Driscoll
National Marine Fisheries Service, Washington State Habitat Branch, 510 Desmond Dr. SE, Suite 103, Lacey, WA 98503

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