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

Refer to:
OHB2001-0178-FEC

June 20, 2002

Mr. Lawrence C. Evans
Chief, Regulatory Branch
Department of the Army
Portland District, Corps of Engineers
Post Office Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for the City of Pendleton, Water Intake and Pump Station Project, Umatilla County, Oregon (Corps No. 2001-00291).

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed City of Pendleton (City) Water Intake and Pump Station Project, Umatilla County, Oregon. NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) or destroy, or adversely modify their critical habitat. As required by section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary to minimize the impact of incidental take associated with this action.

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

The attached Opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this Opinion, however, a Federal court vacated the rule designating critical habitat for the evolutionarily significant unit considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard, even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need for timely issuance of this Opinion, our critical habitat analysis has not been removed from this Opinion.

If you have any questions regarding this consultation, please contact Doug Baus, of my staff, in the Oregon Habitat Branch at 541.975.1835 ext. 224.

Sincerely,

Russell M Strach for

D. Robert Lohn
Regional Administrator

cc: Mary Headley (COE)
Bob Patterson (City of Pendleton)
Tim Bailey (ODFW)
Greg Smith (USFWS)

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

City of Pendleton
Water Intake and Pump Station Project
Umatilla County, Oregon
(Corps No. 2001-00291)

Agency: U.S. Army Corps of Engineers, Portland District

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Date Issued: June 20, 2002

Issued by: Russell M Strach for
D. Robert Lohn
Regional Administrator

Refer to: **OHB2001-0178-FEC**

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1. ENDANGERED SPECIES ACT

1.1 Background

On August 6, 2001, the National Marine Fisheries Service (NMFS) received a letter from the U.S. Army Corps of Engineers (COE) requesting informal consultation regarding the potential effects of the City of Pendleton (City) Water Intake and Pump Station Project, on Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) and its designated critical habitat. The proposed project is in northeastern Oregon, on the Umatilla River, in Umatilla County.

In a letter dated October 18, 2001, NMFS informed the COE that NMFS did not concur with the COE's "not likely to adversely affect" (NLAA) determination. Furthermore, NMFS requested additional information from the COE and informed the COE that formal consultation would be initiated when NMFS received a completed consultation initiation package. On March 4, 2002, NMFS received the requested additional information from the City's consultant, Montgomery Watson Harza (MWH), and initiated formal consultation with a letter to the COE dated March 19, 2002.

The MCR steelhead was listed under the Endangered Species Act (ESA) on March 25, 1999 (64 FR 14517). The proposed project is within MCR steelhead critical habitat, which was designated February 16, 2000 (65 FR 7764). Protective regulations were issued for MCR steelhead under Section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

The objective of this Opinion is to determine whether the construction of the City's Water Intake and Pump Station Project, in Umatilla County, is likely to jeopardize the continued existence of the MCR steelhead, or destroy or adversely modify its critical habitat.

This Opinion contains an analysis of the effects of the proposed action on designated critical habitat. Shortly before the issuance of this Opinion, however, a Federal court vacated the rule designating critical habitat for the evolutionarily significant unit (ESU) considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard, even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need for timely issuance of this Opinion, our critical habitat analysis has not been removed from this Opinion.

1.2 Proposed Action

<u>Background</u>
The proposed action involves the construction of a river intake and pump station on the Umatilla River to provide the City with its municipal water supply. This project is being developed to divert water from the Umatilla River during the high-flow period, typically mid-December through May, for treatment and storage. During the low-flow period, typically June through

mid-December, diversion from the river would consist of less than 2.5 cubic feet per second (cfs). The City's goal is to reduce its reliance on the declining groundwater aquifer, and eventually rely solely on surface water for its source supply.

Currently, the City derives its water supply from two sources: (1) A series of infiltration galleries, known as springs, located 17 to 22 miles east of Pendleton along the Umatilla River; and (2) a series of six deep, basalt wells. The springs have recently been determined by the Oregon Department of Environmental Quality (ODEQ) to be under the influence of surface water. The City had until March 2001, to address this issue and has recently notified the ODEQ that they are pursuing filtration treatment by late 2002. In addition, the City has observed a continuous decline in the water levels in its deep basalt wells for many years.

The proposed project involves the construction of a new river intake and pump station to replace the springs. With the development of the new intake, and the successful transfer of the points of diversion for the City's existing water rights, the water historically withdrawn from the springs collection area would no longer be piped to the City of Pendleton. Upon transfer of the diversion points, the year-round flow from the springs would be returned to the Umatilla River in order to be diverted at the new intake location. This change of diversion point will result in water historically diverted from the springs remaining in the Umatilla River for an additional 17 to 22 miles. This approach is expected to result in an overall net benefit to both temperature and flows within this stretch of the Umatilla River.

The City is developing a water treatment plant to filter 9.3 cfs, initially during the winter and spring months from the Umatilla River. A portion of the filtered water will be stored in two aquifer storage and recovery (ASR) pilot wells. The ASR wells will be used to store and recover treated water from an underground storage reservoir. The stored treated water will be recovered during the summer months, when the City will be filtering no more than 2.5 cfs of water directly from the Umatilla River. Based on water-right priority dates, and the successful transfer of points of diversion, the City plans to divert water directly from the Umatilla River under the following instream scenarios:

1) Year Round - up to 2.5 cfs.
2) When instream flows exceed 250 cfs to 278 cfs - divert up to 23.3 cfs, as needed.

This year-round withdrawal of 2.5 cfs is based on the City's 1885 water right of 2.0 cfs, and their 1890 water right of 0.5 cfs. As part of a successful transfer for the points of diversion of these two water rights, the City will return flows from the springs directly to the Umatilla River on a year-round basis. Historically, the springs have conveyed an average of 3.85 cfs during the summer and fall months. The City will divert no more than 2.5 cfs at the new point of diversion when instream flows are below 250 cfs. Temperature modeling conducted by the ODEQ has shown that returning the flows from the springs to the river will decrease temperatures in the Umatilla River (MWH 2001a).

River Intake Structure

The project includes a 23.3 cfs municipal water intake, pump station, and delivery pipeline. The water intake will be fitted with NMFS-approved fish screens (Table 1). The intake will primarily divert water from the Umatilla River during the high-flow period, typically mid-December through May. Initially, the intake will divert up to 9.3 cfs to a new water treatment plant. The intake structure is designed to ultimately deliver up to 23.3 cfs to meet the short-term water demands for the City. Diversion from the river during the months of June through mid-December, will be 2.5 cfs, therefore, the normal low water level during the high-flow period (mid-December through May) forms the basis of design for NMFS-approved fish screens (NMFS 1996a). Specific fish screen criteria are as follows:

Table 1. NMFS-Approved Wedge Wire Plate Screen Design Criteria (NMFS 1996a)

Item/Function	Criteria
Minimum water surface elevation in the Umatilla River for operation at full capacity	1097.5 feet (ft)
Approach velocity	0.4 feet per second (fps)
Hydraulic capacity at minimum depth	23.3 cubic feet per second (cfs)
Screen type	Wedge Wire
Material	Stainless steel
Percent open area	40%
Bar spacing	1.75 millimeters (mm)
Minimum effective screen area 23.3 cfs	58 ft
Flow distribution	Adjustable baffles
Cleaning	Air-burst

To avoid impacts from in-water construction, a coffer dam will be erected in the river around the disturbance area. The presence of the coffer dam will contain discharges from construction work scheduled to occur in the Umatilla River, thereby limiting turbidity increases from construction work, to those periods when the coffer dam is being installed or removed. The area within the coffer dam will be de-watered. The City has not specified the method by which its contractor will construct the coffer dam. Based on MWH's prior experience as the engineer for the design of other intakes in similar settings, the following is the description of the installation of a coffer dam used in this analysis.

Concrete ecology blocks (two feet, by two feet, by six feet), stacked two high will be placed in the riverbed by a crane. The blocks will extend in a rectangular shape into the river from a point on the bank upstream of the work site, to a point on the same bank downstream of the work site, so as to enclose the intake sites. A heavy plastic liner will be placed over the ecology blocks.

The liner will be anchored with clean gravel fill on the outside of the dam, and with sandbags on the interior of the dam. Sediment inputs as a result of the gravel fill will be minimized, since clean fill will be used.

Submersible pumps will be placed in the enclosed area, and will de-water the enclosure by pumping the water to a settlement area on the bank. The turbidity of this water will be reduced by settling, and by filtering through straw bales and a gravel bank at the settlement area discharge outlet. Construction of the coffer dam is anticipated to require 1 to 2 days. It is anticipated that the removal of the coffer dam can be completed in one day. The coffer dam will remain in place for the duration of the intake construction, which is anticipated to require 6 to 8 weeks. Construction will begin at the start of the Oregon Department of Fish and Wildlife (ODFW) in-water work window (ODFW 2000, July 15 - October 15).

No fish salvage operations are planned within the coffer dam because juvenile MCR steelhead are not likely to be present in the project area during the ODFW in-water work window given the high stream temperatures found in this reach during this time (CTUIR 1999, MWH 2002, and ODFW 2001b). Sediment mobilized during placement of the ecology block coffer dam will be limited to the thin layer of loose sediment present on the existing bedrock, and the smaller substrate materials. Mobilization of these sediments is not likely to affect spawning of MCR steelhead since spawning in not known to occur in the project area, or downstream of the project area (MWH 2002).

Construction of the river intake involves the fill and removal of substrate in-water and in the riparian area. Removal of 135.4 cubic yards (yds^3) of streambed will occur at the river intake structure. The trench between the river intake structure and the pump station will require removal of 390 yds^3 of material. De-construction of an existing dike, located on the project site, will involve the removal of 161 yds^3. The total substrate removal from the project site will involve 686 yds^3.

Approximately 135.4 yds^3 of streambed material will be removed, and then replaced with 54.6 yds^3 of fill to provide a solid foundation for the river intake structure. An additional 74.4 yds^3 of riprap will be placed at the intake to form riprap groins. Covering the trench between the river intake and the pump station will involve 390 yds^3 of fill. The total amount of fill involved in the project will be 519 yds^3.

The riprap groins were added to the project design to address ODFW's concerns regarding sediment deposition at the base of the fish screens. The riprap groins are an engineered design used to increase flow velocities in front of the intake in order to eliminate the deposition of sediment at the intake base. If minimal amounts of sediment and gravel begin to be deposited at the screened intake, manual cleaning of the screens will be required. Minor amounts of sediment and gravel at the intake screen may be removed manually with a shovel. However, if significant amounts of sediment begin to accumulate at the screened intake site, then City engineers will design modifications to eliminate the sediment deposition problem. In no case shall machinery

be allowed to perform in-channel maintenance activities without first designing an appropriate structural solution to resolve the deposition problem (MWH 2001b and ODFW 2001a).

The excavated materials will be disposed of on a designated site, above the 500-year flood level, along an old roadbed that formerly provided access to the property. Implementation of site-specific sediment and erosion control measures will occur as part of project construction. These measures will include the placement of temporary ground cover on all exposed soils and slopes. Silt fences will be placed at the base of any slopes and/or areas adjacent to drainage ways, in order to prevent excavated material from entering surface waters. All erosion and sediment control measures will be inspected weekly to assure their effectiveness. Streamside vegetation that is removed during construction will be replanted with native vegetation to maintain the riparian corridor along the bank of the Umatilla River. The disposal area will be enclosed with erosion control barriers to prevent runoff.

Pump Station

The pump station and the river water delivery pipeline will be located on a six-acre parcel, adjacent to the Umatilla River. The intake location is within the 100-year floodplain. The pump station will be developed along the south bank of the Umatilla River, in close proximity (55 ft) to the screened intake. It will be designed for 12.4 cfs, initially, using two 6.2 cfs pumps and one 6.2 cfs standby pump. An additional pump will be added as the treatment plant is expanded to 15.5 cfs, and then ultimately to 23.3 cfs. The standby unit will be available to replace one of the largest pumps if it goes out of service. The planned 24-inch raw water pipeline is sized for the ultimate flow of 23.3 cfs.

1.3 Biological Information and Critical Habitat

Critical habitat for MCR steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (100 years or more), naturally-impassable barriers, including the Umatilla River, which is in the project area. The adjacent riparian zone is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

The Umatilla River provides rearing and migratory habitats for both adult and juvenile life stages of MCR steelhead with spawning habitat in the upper reaches. Adult MCR steelhead enter the Columbia River in the spring, and migrate upriver through the summer, fall, and winter months, seeking their tributary of origin. By early the next spring, the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by the July of the same year. The resulting juveniles will spend from one to four years rearing to smolt size, then begin their migration to the ocean.

Essential features of the adult spawning, juvenile rearing, and adult and juvenile migratory habitats for this species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. The essential features that the proposed project may affect are: Substrate, water quality, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

Biological information concerning the MCR steelhead is found in Busby et al. (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed. Within the Umatilla basin, returns of adult wild summer steelhead have declined from highs of 2,816 and 3,296 (in 1986 and 1987) to an average of 963 during 1995-97. Hatchery steelhead, developed from wild Umatilla broodstock, were introduced to the Umatilla River basin in the late 1980s, and as a result, an increasing percentage of the summer steelhead are of hatchery origin: 17 percent of the total adult returns in 1990, vs. 62 percent in 1997 (Chilcote, 1998).

1.4 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). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: 1) Defining the biological requirements and current status of the listed species, and 2) evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NMFS 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, NMFS 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 NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat, and then must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers the direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult

migration, spawning, and rearing of the MCR steelhead under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods the NMFS uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS 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, NMFS starts with the determinations made in its decision to list MCR steelhead for ESA protection, and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally-reproducing population levels, at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are: Improved habitat characteristics that function to support successful adult and juvenile migration, spawning, and rearing.

MCR steelhead's survival in the wild depends on the proper functioning of certain ecosystem processes, including habitat formation and maintenance. The restoration of improperly functioning habitat to properly functioning conditions will likely lead to the improved survival and recovery of MCR steelhead. In conducting analyses of habitat altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NMFS 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved much since the species was listed.

1.4.2 Environmental Baseline

The Umatilla River basin covers approximately 2,500 square miles and is located in the Middle Columbia River Basin. The Umatilla River originates in the conifer forests of the Blue Mountains, at an elevation of more than 6,000 feet, and flows west, then northwest through the semi-arid shrub steppe of the Deschutes-Umatilla plateau, entering the Columbia River at an elevation of 270 feet. The proposed intake is to be placed in and along the Umatilla River, on the eastern edge of the Pendleton city limits, at approximately river mile (RM) 57.3. The proposed intake is about one-half mile downstream from the recently constructed intake and outlet structures associated with the Bonneville Power Administration, ODFW, and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) fish acclimation and rearing facility. This reach of the Umatilla River meanders through the City of Pendleton, and has a relatively low velocity and a low gradient.

Summer steelhead, chinook, and coho salmon were abundant in the Umatilla River before the 1900's. Several factors have contributed to the decline of these populations, including

agricultural development, over-appropriation of stream flows to irrigators, stream channelization, and floodplain modification. Conditions in the project area are considered highly impacted. Sedimentation, partially due to poor agricultural practices, is a problem in the mainstem Umatilla River, which was listed for sedimentation on the Clean Water Act's 303(d) list of water quality-limited river segments for Oregon in 1998.

The current range-wide status of the MCR steelhead is found in Busby et al. (1995, 1996). The proposed action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site, and may extend upstream or downstream based on pollutant discharge, stream hydraulics, sediment, the potential for impairing fish passage, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, thereby contributing to stream degradation. As such, the action area for the proposed activities includes the immediate portions of the watershed containing the project, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term, by the proposed project. For this project, the action area includes the Umatilla River from the springs (RM 78), through the intake area (RM 57.3), and downstream to the river's confluence with McKay Creek (RM 52.3).

The project will be located on property that has historically been disturbed by grazing and fill activities. The vegetation onsite is dominated by many non-native, weedy, invasive species. There is a native riparian fringe along some portions of the river frontage. The property is approximately 1,100-1,110 feet above sea level, and its topography is relatively flat with the exception of old scour channels from the Umatilla River. Nutrient additions from rural areas may cause some local problems, and contribute to overabundance of algae and aquatic weeds in this river stretch.

Using the NMFS Matrix of Pathways and Indicators (MPI), the environmental baseline for the Umatilla River Watershed is discussed in the BA. The MPI indicates the following conditions are not properly functioning: (1) Water quality (7 day maximum temperature, chronic chemical contamination/nutrient input, and overall water quality); and (2) flow hydrology (peak/base flows). The BA indicates the following pathways are functioning at risk: (1) Water quality (suspended sediment/turbidity); (2) habitat access (physical barriers, substrate, large wood, percent of area in pools, pool quality, pool frequency, off-channel habitat, and refugia); (3) flow hydrology (drainage network increase); (4) channel condition/dynamics (streambank condition, and floodplain connectivity); and (5) watershed conditions (road density, disturbance history, stream influence zone, and refugia).

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion incorporates a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This

process is described in *Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale* (NMFS 1996b). The effects of actions are expressed in terms of the expected effect – restore, maintain, or degrade – on aquatic habitat factors in the project area.

The municipal water supply project has been designed to enhance water quality on the Umatilla River. Currently, the Umatilla River is listed on the 303(d) list for several parameters including temperature, pH, sedimentation, bacteria, flow modification and aquatic weeds or algae. Summer salmonid rearing temperature standards are exceeded both upstream and downstream of the site. Although the project will not restore water quality to a properly functioning condition, it will help improve water quality on the Umatilla River.

It is unlikely juvenile MCR steelhead will be at the construction site (RM 57.3) during the ODFW in-water work window due to high temperatures. Additionally, Umatilla River flows are unfavorable (low flows and higher-than-optimal temperatures) for the migration of adult MCR summer steelhead upstream of McKay Creek (RM 52.3) during the ODFW in-water work window. ODFW documentation indicates adult steelhead generally arrive in the Pendleton reach of the Umatilla River in mid- to late November, or even into December (CTUIR 1999, MWH 2002, and ODFW 2001b).

Construction of the river intake will require both excavation and fill activities within the riverbed. To minimize water quality impacts, a coffer dam will be installed around the area of disturbance. A coffer dam is designed to minimize sediment input into water by isolating the construction activities, nevertheless, installation and removal of the coffer dam will generate minor amounts of sediment. Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, as well as interfere with feeding (Spence et al. 1996). Behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment. Localized increases of erosion/turbidity during work activities could displace fish in the action area, and disrupt normal behavior. These effects are expected to be nonexistent due to the high temperatures of the Umatilla River and the resulting lack of MCR steelhead in the work site vicinity during the ODFW in-water work window.

Sediment inputs into the Umatilla River resulting from the operation of the pump station will be minimized by using an air-burst screen cleaning system. The air-burst cleaning system will enable the pump station to operate efficiently, and prevent the majority of debris accumulation at the screened intake. If the screened intake accumulates debris and is unable to withdraw water, the pump station will not function properly. Engineers expect minor amounts of sediment and gravel to be deposited at the base of the screens, which may be removed manually with a shovel. However, if significant amounts of sediment begin to accumulate at the screened intake site, then City engineers will design modifications to eliminate the sediment and gravel deposition problem. In no case shall machinery be allowed to perform in-channel maintenance activities without first designing an appropriate structural solution to resolve the deposition problem (MWH 2001b and ODFW 2001a).

Access to upstream habitat will not be blocked by the coffer dam used to isolate the in-channel construction site. The coffer dam will extend into the Umatilla River for approximately 25 feet in an area where the river is approximately 100 feet wide. The coffer dam will be removed when the construction is completed, still within the ODFW in-water work window. It is possible the turbidity plume generated during placement and removal of the coffer dam my have a short-term effect on the food source of MCR steelhead. Macro-invertebrates are a food source for MCR steelhead, and their productivity may be inhibited by the introduction of sediment into the Umatilla River.

As discussed in the BA, documentation indicates it is extremely unlikely juvenile MCR steelhead will be rearing at the project site during the ODFW in-water work window (July 15 to August 15) when the coffer dam is installed or removed (CTUIR 1999, MWH 2002, and ODFW 2001b). Therefore, fish salvage efforts are not neede or proposed prior to construction.

The Umatilla River at the project site consists of a shallow channel with substrate comprised primarily of basalt bedrock. Instream habitat near the project site consists of a long (greater than 125 feet) , straight, bedrock-dominated glide, bordered by boulder and bedrock riffles on the upstream and downstream ends of the project site. There is no known spawning of MCR steelhead in the stretch of the Umatilla River adjacent to the site, nor is there any spawning substrate in the immediate area. Consequently, there will be no effect on spawning activity near the construction site.

The project site is located in a riparian habitat area. A total of 686 yds^3 of substrate will be removed (streambed at intake, trench, dike removal) from the project site. A total of 519 yds^3 of fill (intake structure, riprap, tench and intake pipe) will be placed at the project site. Approximately 60 feet of linear streambank at the intake site would be altered by the addition of 74.4 yds^3 of riprap to address ODFW's concerns regarding sediment deposition at the base of the fish screens (ODFW 2001a). The riprap is designed to eliminate deposition of sediment at the base of the intake by increasing stream velocity. Additionally, 135.4 yds^3 of substrate and riparian habitat would be removed to construct the river intake. This limited amount of riprap and substrate removal would not confine or alter the channel enough to cause any downstream erosion, or to significantly affect nutrient exchange between the surrounding riparian area and flowing water. The clearing of riparian vegetation will result in short-term, localized impacts to water temperature, and contribution of organic debris. Streamside vegetation removed during construction will be replanted with native vegetation. Over the long term, the revegetation may improve riparian conditions at the site by contributing to shade, organic debris, bank stability, and eventually large woody debris recruitment.

The project will increase flows in the Umatilla River during the low-flow months, thereby benefitting MCR steelhead through the reduction of water temperature. An ODEQ thermograph indicated the current summer temperature in the Umatilla River at RM 72.7 is approximately 76°F and the temperature at RM 57.3 (proposed intake site) is approximately 82°F. The thermograph indicates the proposed project would reduce the current summer temperatures at RM 72.7 to approximately 71°F, and temperatures at the proposed intake location at RM 57.3

would be reduced to approximately 81°F. The temperature reduction will occur when the spring flows, those that were historically diverted during the summer (approximately 4 cfs), are returned to the Umatilla River, whereby the City withdraws a proposed maximum of 2.5 cfs (MWH 2001a).

When flows in the Umatilla River are below 250 cfs, the City will reduce its diversion at the intake to no more than 2.5 cfs. A diversion rate of 2.5 cfs is less than the average flow of 3.85 cfs that historically has been diverted upstream at the springs. At river flows of 250 cfs, the 2.5 cfs diversion limit represents one percent of the available flow. Under worst-case conditions, the Umatilla River flows may reach a low of 30 cfs. If this occurs, the City's diversion would represent less than nine percent of the available flow. The ODEQ temperature model documented that the temperature benefits created by the project would extend downstream from the project site (RM 57.3).

MCR steelhead will not become entrained on the fish screens while the pump station is in operation. To protect fisheries resources from hydroelectric, irrigation, municipal water supply and industrial water supply developments, NMFS established design criteria for the construction of juvenile fish screens. The water intake for this project will be fitted with a NMFS approved fish screen. A NMFS engineer reviewed and approved the design of the fish screen and the fish screen cleaning system. In compliance with NMFS criteria, the approach velocity at the screened intake shall not exceed 0.40 feet per seconds (fps). The approach velocity will allow rearing and migrating MCR steelhead to swim past the intake location without being drawn into the screened intake (NMFS 1996a).

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include: Substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for MCR steelhead consists of all waterways below naturally-impassable barriers, including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed action will affect critical habitat in the short term by contributing a temporary increase of sediment and turbidity in the Umatilla River. Additionally, the construction activities will disturb aquatic and riparian habitat. NMFS does not expect that these actions will diminish the value of the habitat for survival of MCR steelhead. The long-term effect of this project will be beneficial. Although the project will not restore the MPI pathways of *Water Quality,* and *Flow/Hydrology* to a PFC in the Umatilla River, this project will enhance these two MPI parameters that are not properly functioning. The project allows more water to remain in the Umatilla River than the City's historic, and current water withdrawal scenario.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those 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 includes the streambed and streambank, including riparian areas, of the Umatilla River within the area of the project site, and for a short distance upstream and downstream. The agricultural and land use practices that have contributed to the degradation of the Umatilla River will most likely continue for the foreseeable future.

Construction of the project will provide water flows for the existing municipal needs of the City. Future development may occur, and consequently the project, as proposed, is designed to accommodate future system expansions. This approach and design will limit the need for future in-water work, and thereby potential additional impacts to salmonid habitat. Although it is not possible to predict the timing or amount of potential future system expansions at this time, existing regulatory mechanisms are in place that will address future development activities that may be associated with this project.

1.6 Conclusion

NMFS has determined that, when the effects of the proposed action are added to the environmental baseline and the cumulative effects occurring in this area, it is not likely to jeopardize the continued existence of MCR steelhead. Additionally, NMFS concludes that the subject action would not cause adverse modification or destruction of critical habitat for MCR steelhead. NMFS believes that the proposed action will cause some minor, short-term increases in stream turbidity and sedimentation in the Umatilla River, and may result in some harassment of juvenile MCR steelhead due to the required in-water work. The project's long-term effects on MCR steelhead would be beneficial. Flows historically removed 17 to 22 miles upstream from the City will now remain in the stretch of river between the springs and the City. ODEQ modeling demonstrates that the temperatures in the Umatilla River will be reduced by keeping those spring flows in the Umatilla River.

NMFS' conclusions are based on the following considerations: 1) All in-water work will occur during the ODFW in-water work window for this area (July 15 - October 15), and in-water work will be limited to the amount described in the BA; 2) all disturbed soils will be replanted with native vegetation; 3) sediment discharge will be minimized; and 4) the City will comply with previously agreed upon water withdrawal agreements made between state, Federal, and Tribal entities.

1.7 Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to

minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS has no additional conservation recommendations regarding the action addressed in this Opinion.

1.8 Reinitiation of Consultation

Reinitiation of consultation is required if: (1) 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; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affect by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 4(d) and Section 9 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 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 (64 FR 60727; November 8, 1999). Harass is defined as actions that create the likelihood of injuring listed species 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.

2.1 Extent of Take

NMFS anticipates that the subject action covered by this Opinion is reasonably certain to result in incidental take of designated critical habitat of MCR steelhead. Some minimal level of incidental take is expected to result from the in-water work. Because of the inherent biological characteristics of aquatic species such as MCR steelhead, the likelihood of discovering take attributable to this action is very limited. Effects of actions such as that addressed in this Opinion are largely unquantifiable in the short term, and may not be measurable as short-term effects on the species' habitat or population levels. Therefore, although NMFS expects some incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take of listed fish at any life stage associated with the proposed construction activities.

2.2 Effect of Take

In this Opinion, NMFS has determined that the level of anticipated take is not likely to result in jeopardy to MCR steelhead or to destroy or adversely modify designated critical habitat when the reasonable and prudent measures are implemented.

2.3 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(o)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to require the City to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The Umatilla River Intake and Pump Station Project includes a set of "conservation measures" designed to minimize take of ESA-listed species. These are described on pages 12 and 13 of the BA, dated March 22, 2001. Specific measures for in-water and bank work, erosion control, hazardous materials, and site-specific conservation measures are included.

NMFS believes that the following reasonable and prudent measures, along with the conservation measures described in the BA, are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion.

The COE shall:

1. Minimize the likelihood of incidental take by timing the completion of all in-water work as necessary to avoid harming vulnerable salmon life stages, including spawning, migration and rearing.

2. Minimize the likelihood of incidental take by operating intake structure with a NMFS-approved fish screen.

3. Minimize riparian disturbance resulting from construction activities in or near the water by implementing effective erosion and pollution control measures, minimizing the movement of soils and sediment both into and within the stream, and stabilizing bare soil in the short and long term.

4. Minimize the likelihood of incidental take from in-water work by ensuring that all in-water work areas are isolated from flowing water.

5. Monitor the implementation of conservation measures to ensure they are effective in managing take from permitted activities and report the requests to NMFS.

2.4 Terms and Conditions

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

1. To implement Reasonable and Prudent Measure #1 (in-water timing), the COE shall ensure that:
   a. All work within the ordinary high water mark will be completed within the ODFW approved in-water work period (July 15 to October 15).[1]
   b. Extensions to the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NMFS.

2. To implement Reasonable and Prudent Measure #2 (NMFS-approved fish screen design), the COE shall ensure that:
   a. Fish Screen. The intake screen authorized under this Opinion shall have a fish screen installed, operated and maintained according to NMFS' fish screen criteria (NMFS 1996a).
      i. The intake screen design shall be such that the bar height is approximately 10 times the bar thickness and screen fabrication shall be as per the Hendrick Backing Bar and Dowel Design or otherwise as approved by a NMFS engineer.
      ii. The airburst manifold piping shall be run horizontally and the pneumatic controls shall energize the manifold pipes sequentially in order to deliver maximum cleaning energy to the submerged portion of the screen.

3. To implement Reasonable and Prudent Measure #3 (pollution and erosion control) the COE shall ensure:
   a. Project design. Minimize alteration or disturbance of the stream banks and existing riparian vegetation.
   b. Pollution and erosion control plan. Develop a Pollution and Erosion Control Plan (PECP) for the project to prevent point-source pollution related to construction operations containing all of the pertinent elements listed below and meeting requirements of all applicable laws and regulations.
      i. Describe methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations and staging areas.
      ii. Identify hazardous products or materials that will be used, including procedures for inventory, storage, handling, and monitoring.

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[1] Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12pp (Jne 2000)(identifying work periods with the least impact on fish()http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf).

iii. Develop a spill containment and control plan with these components: Notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures; proposed methods for disposal of spilled materials; and employee training for spill containment.

iv. Describe measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a way that has a minimum impact on the streambed and water quality.

c. Pre-construction activities. Before significant alteration of the action area, complete the following actions.

i. Flag boundaries of the clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Stockpile a supply of erosion control materials (e.g., silt fence and straw bales) on-site to respond to sediment emergencies. Use sterile straw or hay bales when available to prevent introduction of weeds.

iii. Install all temporary erosion controls (e.g., straw bales, silt fences) downslope of project activities within the riparian area. Keep them in-place and maintained throughout the contract period, and until permanent erosion control measures are effective.

d. Earthwork. Complete earthwork, including drilling, blasting, excavation, dredging, filling and compacting, in the following manner.

i. Obtain boulders, rock, woody materials and other natural construction materials used for the project from outside the riparian area.

ii. Place material removed during excavation in locations where it cannot enter streams or other water bodies.

iii. Stabilize all exposed or disturbed areas to prevent erosion.

(1) Stabilize areas of bare soil within 135 feet of waterways, wetlands or other sensitive areas quickly as reasonable after exposure, but within seven days. Use native seeding,[2] mulching, and placement of erosion control blankets and mats, if applicable.

(2) Stabilize all other areas quickly as reasonable, but within 14 days of exposure.

(3) Do not consider seeding outside the growing season as adequate for permanent stabilization.

e. Heavy Equipment. Fuel, maintain and store heavy equipment as follows.

i. Vehicle staging, maintenance, refueling, and fuel storage may not occur within 300 feet horizontal distance from the Umatilla River.

[2] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

ii. All equipment that is used for in-water work will be cleaned before operations below the bankfull elevation. External oil and grease will be removed, along with dirt and mud. No untreated wash and rinse water will be discharged into stream and rivers without adequate treatment.

iii. All vehicles operated within 300 feet of any stream or water body will be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected will be repaired before the vehicle resumes operation.

iv. When not in use, vehicles will be stored in the vehicle staging area.

v. The staging area will provide adequate containment to prevent pollutants from entering the waterway.

f. Site restoration. Complete site restoration and clean up, including protection of bare earth by seeding, planting, mulching and fertilizing, in the following manner.

i. Plant disturbed areas with native vegetation specific to the project vicinity or the region of the state where the project is found, using a diverse assemblage of woody and herbaceous species.

ii. All areas damaged by the construction activity will be restored to pre-work conditions.

iii. Do not apply herbicide as part of this permitted action.

iv. Do not use surface application of fertilizer within 50 feet of any stream channel.

v. Plantings in areas disturbed by construction activities will achieve an 80 percent survival success after three years.

(1) If success standard has not been achieved after three years, the COE will develop an alternative plan, address temporal loss of function and remedy the issue.

(2) Plant establishment monitoring will continue and plans will be submitted to the NMFS until site restoration success has been achieved.

4. To implement Reasonable and Prudent Measure #4 (isolation of in-water work area), the COE shall ensure:

a. The work area will be isolated from the wetted channel with a coffer dam (made out of concrete ecology blocks, sandbags, sheet pilings, inflatable bags, etc.), or similar structure, to minimize the potential for sediment entrainment.

5. To implement Reasonable and Prudent Measure #5 (monitoring and reporting), the COE shall:

a. Submit a report to NMFS within 120 days of completing the project. Describe the COE's success meeting conservation recommendations above. Include the following information.

i. Project identification.

(1) Project name;

(2) starting and ending dates of work completed for this project; and,

(3) the COE contact person.

ii. Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iii. Site restoration. Documentation of the following conditions:

(1) Finished grade slopes and elevations.

(2) Planting composition and density.

(3) A plan to inspect and, if necessary, replace failed plantings and structures for a period of three years.

iv. A narrative assessment of the effects of the project.

v. Photographic documentation of environmental conditions at the project site before, during and after project completion.

(1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre- and post-construction.

(2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

(3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. Submit monitoring reports to:

National Marine Fisheries Service
Oregon Habitat Branch, Habitat Conservation Division
Attn: F/NWR/2001/00917
525 NE Oregon Street, Suite 500
Portland, Oregon 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 NMFS 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 also 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 NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NMFS 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 NMFS provide a detailed response in writing to NMFS 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 NMFS, 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 NMFS 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. Currently, the chinook salmon present in the Umatilla River are of hatchery origin.

3.4 Proposed Action

The proposed action is detailed above in Section 1.2 of the ESA portion of this Opinion. The action area includes the Umatilla River in the vicinity of the springs (RM 78) through the intake area (RM 57.3) and downstream to the river's confluence with McKay Creek (RM 52.3). This area has been designated as EFH for various life stages of chinook salmon.

3.5 Effects of Proposed Action

As described in detail in the ESA portion of this consultation, the proposed activities may result in detrimental, short-term, adverse effects to a variety of habitat parameters.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the COE, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Section 2.4 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the COE to provide a written response to NMFS' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NMFS' conservation recommendations, the COE shall explain its reasons for not following the recommendations.

3.9 Supplemental Consultation

The COE must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

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.

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