

ENVIRONMENTAL ASSESSMENT
EA : OR-128-99-14

**A proposal to construct a Streambank Erosion Control Project
Through Jobs-In-The -Woods Funding
In Sixes River Analysis Area**

APPENDIX C
EVALUATION OF CONSISTENCY WITH NMFS'
MARCH 18, 1997 PLAN-LEVEL BO

Evaluation of Consistency with NMFS' March 18, 1997 Plan-level BO:

Conservation Recommendations

The Sixes River Watershed Analysis (SRWA) includes an assessment of the aquatic ecosystem of the Sixes River watershed, and the status of salmonid stocks is addressed as a primary issue (p. O-13, p. A-17 to A-24). This meets the LRMP BO Conservation Recommendation 3, page 47.

Reasonable and Prudent Measures

During the project design and preparation of the EA for the proposed action, the interdisciplinary team used applicable criteria in the Northwest Forest Plan ROD to ensure the proposed actions are consistent with applicable standards and guidelines.

1. Reasonable and Prudent Measure 1 (p. 63) - The consistency of the proposed project with ACS objectives is documented below.
2. Reasonable and Prudent Measure 2 (p. 63) - NMFS' Checklist and Matrix of Pathways and Indicators was completed and the project will be submitted for formal consultation prior to implementation.
3. Reasonable and Prudent Measure 3 (p. 63) - N/A
4. Reasonable and Prudent Measure 4 (p. 64) - The proposed project is tiered to the Sixes River Watershed Analysis (see "Evaluation of Consistency with Watershed Analysis Findings" above). The Edson Creek Streambank Erosion Control EA (#OR128-99-14) will be submitted for public/interagency review and comment. Although the proposed action does not address the landscape-scale processes that are causing the bank erosion and channel migration, the design works with the natural fluvial processes to restore some level of aquatic habitat function while providing for continued recreation and transportation at the Recreation Site. The project's priority is a reflection of the risk to existing recreation and transportation facilities.
5. Reasonable and Prudent Measure 5 (p. 64) - All work on this project will be accomplished during the instream work period (July - September).
6. Reasonable and Prudent Measure 6 (p. 64) - Relevant BMPs, (Nos. 2, 3, 6, 7, 10, 11, & 13) as listed on pp. D-2 & D-3 of the Coos Bay District ROD and RMP, have been incorporated into the project design features.

Terms and Conditions

7. Terms and Condition number 1.a. (p. 66) - The proposed action is designed in accordance with relevant standards and guidelines (NEPA documentation), consistent with NFP ACS objectives (see ACS consistency below). In addition, the results of watershed analysis and other information were used to reach the finding that the actions either "meet" or "do not prevent attainment" of the ACS objectives.
8. Terms and Condition number 2.a-c. (p. 66) - The proposed project will undergo the Level 1 team process, and the NMFS' Checklist and Matrix of Pathways and Indicators has been completed at the 5th field watershed and site levels. Through these processes, it was determined that the proposed project has more than a negligible probability of take of proposed/listed anadromous salmonids or destruction/adverse modification of proposed/designated critical habitat, and therefore is a likely to adversely affect (LAA) action. As an LAA action, the proposed project will undergo formal consultation and interagency discussions at a Level 1 team meeting. These measures are in accordance with Terms and Condition number 2. a-c on page 67.

9. Terms and Condition number 3. (P. 69) - N/A
10. Terms and Condition number 4. (P. 69) - The NEPA analysis (EA #OR128-99-14), associated specialist's reports, and engineering designs will be provided to the Level 1 team for review.
11. Terms and Condition number 5. (P. 69) - All work on this project will be accomplished during the instream work period (July - September).
12. Terms and Condition number 6. (P. 69) - Relevant BMPs, (Nos. 2, 3, 6, 7, 10, 11, & 13) as listed on pp. D-2 & D-3 of the Coos Bay District ROD and RMP, have been incorporated into the project design features. Additionally, turbidity monitoring will be accomplished in conjunction with the project.
13. Terms and Condition number 7. (P. 69) - See "RATIONALE USED IN COMPLETING THE CHECKLIST FOR DOCUMENTING ENVIRONMENTAL BASELINE AND THE EFFECTS OF PROPOSED ACTION(S) ON RELEVANT INDICATORS."

No other Terms and Conditions contained in NMFS' March 18, 1997 Plan-level BO apply to the proposed action.

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**APPENDIX D
ESA CONSULTATION PACKAGE**

Project Name: Edson Creek Streambank Erosion Control

BLM District/Resource Area: Coos Bay District / Myrtlewood Resource Area

Project Location (5th Field Watershed): Sixes River Watershed

Project Location(s): Edson Creek Subwatershed

Watershed Analysis Name/Date: Sixes River Watershed Analysis, Iteration 1.0 / USFS Powers Ranger District; Completed 9/22/97

NEPA Document Number: EA OR128-99-14

Basic Project Information

The proposed action is designed to control bank erosion/channel migration at the Edson Creek recreation site to meet recreation and transportation objectives. The instream boulder and LWD structures are expected to work with the channel processes to establish a deeper thalweg, reduce the width/depth ratio, and attenuate shear stress in the near-bank region. The design should benefit aquatic species and their habitat in the vicinity of the project by increasing pool depth and adding complex cover elements. The project includes planting large willow clumps and myrtle trees between the log and boulder structures, and fencing off a 20' setback from the actively eroding bank to protect the transplants and structures.

Edson Creek Recreation Site: The design is based on proven methods, which are described by Rosgen (1996). Ground disturbing actions associated with the project include:

- excavating trenches approximately 3-4' deep and 20' in length in the stream bed
- installation of up to eight boulder vanes
- excavating trenches 3-4' deep and 15-20' in length in the streambank oblique to the channel
- installation of logs with and without attached rootwads
- transplanting myrtle (nursery stock) and willow trees (off-site donor)

Comments: No new roads will be constructed, and adverse impacts to existing riparian condition (primarily grass with salmonberry and sparse mixed hardwoods) should be very minor. Disturbed soils will be seeded and mulched.

TABLE 1: CHECKLIST FOR DOCUMENTING ENVIRONMENTAL BASELINE AND EFFECTS OF PROPOSED ACTION(S) ON RELEVANT INDICATORS FOR KLAMATH PROVINCE SISKIYOU MOUNTAINS PHYSIOGRAPHIC AREA.

Administrative Unit: Coos Bay District- BLM
 Project: Edson Creek Streambank Erosion Control

Section 7 Subbasin: Sixes River
 5th Field Watershed: Sixes River
 Environmental Baseline: Edson Creek Drainage

<u>FACTORS</u> <u>INDICATORS</u>	ENVIRONMENTAL BASELINE			EFFECTS OF THE ACTION(S)		
	Properly Functioning ¹	At Risk ¹	Not Properly Functioning ¹	Restore ²	Maintain ³	Degrade ⁴
<u>Water Quality:</u> Temperature			WA, EA		EA, PJ	
Turbidity			WA			Short-term EA, PJ
Chem. Contam./Nut.		WA			EA, PJ	
<u>Habitat Access:</u> Physical Barriers			WA		EA, PJ	
<u>Habitat Elements:</u> Sediment			WA		EA, PJ	
Large Woody Debris (LWD)			WA		EA	
Pool Character & Quality			WA		EA, PJ	
Off-channel Habitat			WA		EA, PJ	
<u>Channel Cond. & Dyn.</u> Width/Depth Ratio			PJ, WA		EA	
Streambank Condition			PJ, WA		EA	
Floodplain Connectivity		PJ, WA			EA, PJ	
<u>Flow/Hydrology</u> Changes in Peak Flows		PJ, WA			PJ	
<u>Watershed Condition:</u> Road Density & Location		PJ, WA			EA	
Disturbance History			PJ, WA		PJ	
Riparian Reserves			PJ, WA		EA, PJ	
Landslide and Erosion Rates			WA		EA, PJ	

- 1 Two categories of function ("properly functioning" and "not functioning") are defined for each indicator in the "Matrix of Factors and Indicators". The "at risk" category is all other situations.
- 2 For the purposes of this checklist, "restore" means to change the function of an "at risk" indicator to "properly functioning" or to change the function of a "not properly functioning" indicator to "at risk" or "properly functioning" (i.e. it does not apply to "properly functioning" indicators).
- 3 For the purposes of this checklist, "maintain" means that the function of an indicator does not change (i.e., it applies to all indicators regardless of functional level).
- 4 For the purposes of this checklist, "degrade" means to change the function of an indicator for the worse (i.e., it applies to all indicators regardless of functional level). In some cases, a "not properly functioning" indicator may be further worsened, and this should be noted.

DICHOTOMOUS KEY FOR MAKING SECTION 7 DETERMINATION OF EFFECTS

Name and location of action: Edson Creek Streambank Erosion Control (EA OR128-99-14)

1. Are there any proposed/listed anadromous salmonids and/or proposed/designated critical habitat in the watershed or downstream from the watershed?

NO No effect
YES **May affect, go to 2¹**

2. Will the proposed action(s) have any effect whatsoever¹ on the species and/or critical habitat?

NO No Effect
YES **Go to 3**

3. Does the proposed action(s) have the potential to hinder attainment of relevant properly functioning indicators (from checklist)?

NO: **Go to 4**
YES: **Likely to adversely affect²**

4. Does the proposed action(s) have the potential to result in "take"³ of proposed/listed anadromous salmonids or destruction/ adverse modification of proposed/designated critical habitat?

A. There is a negligible (extremely low) probability of take of proposed/listed anadromous salmonids or destruction/adverse modification of proposed/designated critical habitat
 **Not likely to adversely affect**

**B. There is more than a negligible probability of take of proposed/listed anadromous salmonids or destruction/adverse modification of proposed/designated critical habitat
 **Likely to adversely affect⁴****

¹"Any effect whatsoever" includes small effects, effects that are unlikely to occur, and beneficial effects, i.e. a "no effect" determination is only appropriate if the proposed action will literally have no effect whatsoever on the species and/or critical habitat, not a small effect, an effect that is unlikely to occur, or a beneficial effect.

²Document expected incidental take on reverse side of this key.

³"Take" - The ESA (Section 3) defines take as "to harass, harm, pursue, hunt, shoot, wound, trap, capture, collect or attempt to engage in any such conduct". The USFWS further defines "harm" as "significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering", and "harass" as "actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering".

⁴Document expected incidental take on reverse side of this key.

DOCUMENTATION OF EXPECTED ADVERSE EFFECTS

Name of action: Edson Creek Streambank Erosion Control - (1999) - Sixes River

Species of concern: OC coho, OC steelhead, Coastal sea-run cutthroat trout

- ✧ The proposed action may result in adverse effects through which of the following mechanisms (underline or circle and describe as appropriate).

Harm: act that actually kills or injures fish (may include habitat modification that significantly impairs behavioral patterns such as spawning, rearing, migrating, or feeding).

Harass: actions disrupting normal behavioral patterns which include, but are not limited to, breeding, feeding, sheltering.

This action is likely to result in suspension of fine sediments from the substrates at the project site - increasing turbidity above background levels in fish-bearing waters. This may result in habitat avoidance or impaired feeding behavior by juvenile salmonids during project implementation and the first subsequent freshet.

Pursue, Hunt, Shoot, Wound, Capture, Collect, or Delayed Mortality from stress or disease.

The turbidity pulse during construction may stress juvenile salmonids in the vicinity of the project, especially if it coincides with the high summertime water temperatures noted on page A-34 of the Sixes River Watershed Analysis (1997).

- ✧ Temporal Scale: Are the adverse effects expected to of short term (i.e., days/weeks) or long term (i.e., months or years)? Describe as appropriate.

During project implementation (daylight hours for up to two weeks).

- ✧ Which of the following life stages will be adversely affected (underline or circle as appropriate)?
Fertilization to emergence (incubation) **Emergence to smoltation (freshwater rearing).**

Juvenile out migration (including estuarine rearing).

Adult migration to spawning areas.

Spawning.

- ✧ Spatial Scale and Relative Biological Significance: Describe the reaches of stream likely to be adversely affected by the proposed action(s), i.e., is the effect limited to the immediate site or a short reach downstream, or will the effects extend/occur over a lengthy reach (or reaches). Note if the adverse effects are likely to affect exceptionally productive or sensitive salmonid habitat in listed or proposed Critical Habitat, Key Watersheds, or proposed Essential Indigenous Anadromous Salmonid Habitat (i.e., likely to affect productivity of the fifth field watershed).

The project site is within the lower ¼ mile of Edson Creek, a fish-bearing 5th order tributary to the Sixes River. Turbidity impacts may affect coho, steelhead, and cutthroat trout within 1000' of the project area, but are likely to be abated by convergence and mixing of water at the confluence with Sixes River.

Name of Biologist Michael S. Kellett

Date 03-22-99

RATIONALE USED IN COMPLETING THE CHECKLIST FOR DOCUMENTING ENVIRONMENTAL BASELINE AND THE EFFECTS OF PROPOSED ACTION(S) ON RELEVANT INDICATORS

Description of Project(s): Edson Creek Streambank Erosion Control (EA OR128-99-14)

Note: Unless noted otherwise, the information source used for accessing the environmental baseline is contained in the Sixes River Watershed Analysis (SRWA); Iteration 1.0, prepared by the Siskiyou National Forest, Powers Ranger District (9/22/97).

Water Quality

Temperature: The Sixes River is a 303d listed stream for high summertime water temperature. As stated on page A-28 of the SRWA, temperatures within the South Fork of the Sixes River are among the lowest in the upper river, having a 7-day maximum range at the mouth from 61.1 to 65.1 degrees F. (USFS 1991-1994). The 7-day maximum temperatures in Dry Creek range from a high of 68.2 in 1991 and 1992 to a low of 65.3 degrees F in 1993 (USFS) (p. A-32). The 7-day maximum temperatures at the mouth of Edson Creek was 67.3 degrees F in 1995 (Southwest Watershed Council) (p. A-34). Although temperature data is available for only some tributaries in the watershed, what is available suggests that much of the watershed exceeds the criteria of a 7-day maximum average of 64° F, and thus is ***“not properly functioning”***.

No canopy will be harvested, girdled, or otherwise disturbed in the Riparian Reserves, and there will be no direct effect on stream temperature under any of the alternatives. The proposed action may provide indirect beneficial effects to water temperature by reducing the width/depth ratio within the project area and transplanting hardwoods streamside, thereby reducing solar warming. Therefore, the proposed actions would ***“maintain”*** the stream temperature baseline.

Turbidity: Sixes River has naturally high turbidity levels due to large amounts of silt and clay in the watershed. Due to the lack of historical data, it is unknown what affects human activities have had on water clarity. Long-time residents have accounted that they haven't noticed any worsening of water clarity as a result of road construction or timber harvest (p. A-12). However, an assessment of landslides in Dry Creek and South Fork Sixes watersheds from 1943-1986 shows that sediment delivery attributed to road construction and timber harvest has occurred in the watershed for decades, and probably contributed to stream turbidity (p. A-25, A-29). The increased rate of sediment delivery due to management-related landslides suggests that the Sixes watershed is ***“not properly functioning”*** in regard to turbidity levels.

The proposed action calls for excavation of substrates within the active channel. Elevated stream turbidity is likely during construction and during the first freshet thereafter, due to suspension of fine sediments from the channel substrates. These are expected to be short-term pulses. Turbidity during construction is likely to be above summer background levels. Turbidity associated with the first freshet/s subsequent to construction is expected to be within the present range of variability for the site. The proposed actions were determined to ***“degrade”*** the turbidity baseline in the short term (two weeks).

Hazardous Materials: Recreational miners have reported finding mercury in Sixes River (Park 1996), but there are no known natural sources of mercury in the watershed. It is assumed that the source was historic mining, because of the extensive mining history in the Sixes River. The Department of Environmental Quality sampled fish from the Sixes River in 1996 and determined that their mercury levels were below that considered to be a health risk to humans (p. A-12). No information is available for assessing chemical contamination from agricultural practices or other sources. It appears that historical mining has resulted in some level of mercury contamination, and the watershed may be ***“at risk”*** with respect to hazardous materials.

The proposed action involves the use of heavy equipment in immediate proximity to the stream channel. However, implementation of the *Conservation Practices for Streams and Riparian Reserves #13* (Coos Bay District ROD, BMPs p. D-3) and contract stipulations regarding spill containment is expected to ***“maintain”*** the hazardous materials baseline.

Habitat Access

Physical Barriers: A culvert is known to block fish passage on Beaver Creek (p. A-37). No other barriers are known to occur within the watershed (Max Yager, personal communication). Therefore, the Sixes River watershed is “*not properly functioning*” for habitat access.

The proposed actions do not include installing culverts or other potential fish barriers, nor do they include correcting any existing barriers. Therefore, the proposed actions would “*maintain*” the habitat access baseline.

Habitat Elements

Sediment: A combination of the 1964 flood and associated increases in natural sediment delivery, exacerbated by increases in sediment from logging and roads, changed the channel shape and increased sediment stored in the upper and lower valley segments of the Sixes River (p. A-16) and Edson Creek (p. A-34). Both Otter Creek and Big Creek had fines in the boulder plunge pools suggesting recent upslope failures and high turbidity levels (p. A-25). It is likely that the occurrence of fine sediment is outside of the expected natural streambed condition, and would be considered “*not properly functioning*”.

The project is designed to control sediment delivery from bank erosion in the project area, and would therefore “*maintain*” the sediment baseline.

Large Woody Debris (LWD): Large wood has been removed from the channel in association with placer mining, during some early logging operations, and during post-storm salvage (p. A-7, A-16&17). There is very little wood structure on the lower-gradient section [of Edson Creek] (p. A-34). Therefore, the amount of LWD is outside of the expected range of conditions, and ‘*not properly functioning*’.

The proposed action would not involve the removal of large wood from the riparian areas, but would add LWD to the project area and plant trees streamside. Therefore, the project would “*maintain*” the baseline for large woody debris.

Pool Character & Quality: Stream habitat inventories at the watershed scale are lacking, but observations indicate progressive shallowing of pools (p. A-16). It is also likely that the widespread reduction in LWD noted above has caused a reduction of pool volume and depth throughout much of the watershed. The widespread impacts from mining, agriculture, and logging described in the SRWA suggest that the watershed is ‘*not properly functioning*’ with respect to pool character & quality.

The proposed actions are designed to promote a deeper thalweg and provide complex cover elements, thereby enhancing pool character and quality within the project area. The proposed actions would “*maintain*” the pool character & quality baseline.

Off-channel Habitat: Side channel frequency is probably below the expected range, due to the presence of valley-bottom roads, significant reductions in the quantity and size of large woody debris throughout the watershed, and agricultural practices within much of the valley bottom areas (as stated throughout the SRWA). The baseline for off-channel habitat was determined to be “*not properly functioning*,” because side channel frequency is outside of the range expected under undisturbed conditions.

The proposed actions involve work within the stream channel and adjacent flood-prone area. However, the project will not diminish LWD recruitment, accelerate sediment delivery, alter the flow regime, reduce the flood-prone area or impinge on its function; thus would not affect off-channel habitat. Therefore, the proposed actions would “*maintain*” the baseline for off-channel habitat.

Channel Condition and Dynamics

Width/Depth Ratio: Stream habitat inventories are lacking at the watershed scale. However, aerial photographs taken after the 1964 flood show wider riffles than in preceding years. Anecdotal accounts support this observation, reporting that during this time period the normally swift water that flowed through the riffles in summer was slow moving in the wide flat channel (Hofsess 1996, personal communication; Huret 1996, personal communication - p. A-16). These observations from the SRWA indicate that the width/depth ratios over much of the watershed are not within the historic range, suggesting a “*not properly functioning*” condition.

The proposed actions are designed to control bank erosion and channel migration at the project site and reduce the width/depth ratio. Therefore, the proposed action would “*maintain*” the baseline for width/depth ratio.

Streambank Condition: Stream habitat inventories are lacking at the watershed scale. However, based on what is known about agricultural practices and the removal/reduction of LWD throughout the watershed, as noted throughout the SRWA, it is likely that the extent of unstable stream banks is outside of the expected range, and ‘*not properly functioning*’.

The proposed design includes LWD revetments to control bank erosion at the project site. Therefore, the proposed actions would “*maintain*” the streambank condition baseline.

Floodplain Connectivity: Frequent flooding occurs above bankfull level throughout much of the watershed; connectivity between the main channel and off-channel habitats has not been greatly reduced due to land management activities (personal communication, Max Yager, USFS Fisheries Biologist, Powers Ranger District - August 1998). However, floodplain access has been impaired by roads and levees in the lower river. This indicates that the Sixes River watershed is “*at risk*” with respect to floodplain connectivity.

Although there is a potential for the recreation sites to flood, the structures proposed would have minimal impacts on floodplain interactions and connectivity, and would “*maintain*” the current condition.

Flow/Hydrology

Changes in Peak Flows: Based on information contained in the SRWA, the Sixes River watershed has been undergoing a hydrologic recovery since the large-scale logging that occurred in the 1950's thru the 1970's. The recovery of vegetation, the fact that no large-scale fires have occurred since 1966, and the minimal influence of rain on snow effects in the watershed indicate that the hydrologic regime is “*at risk*” under the current conditions (Dan Carpenter, personal communication).

The proposed actions do not involve timber harvest, road construction, or other factors that affect delivery of runoff. Therefore, the proposed actions were determined to “*maintain*” the baseline for peak flows.

Watershed Condition

Road Density & Location: Excluding the nearly 7000 acres of roadless wilderness area, the road density on National Forest lands in the Sixes River watershed is 2.3 miles/square mile, and 3.2 miles/square mile on private lands (p. S-13). Based on the available information, it appears that the average road density (weighted average) for the watershed is approximately 2.8 miles/square mile. Based on maps provided in the SRWA, with the exception of the wilderness area, roads are present throughout much of the valley bottoms, and most likely have negative effects on stream channel and riparian function. Therefore, the Sixes River watershed was determined to be “*at risk*” with respect to road density and location.

The proposed actions do not affect road density or location, thus would “*maintain*” the current condition.

Disturbance History: Timber harvest has been a common disturbance pattern in the Sixes River watershed for nearly 100 years, and it remains so on private lands. Harvest levels have remained at a fairly constant level on

privately owned lands across the watershed (p. T-2). Currently 65% of the Sixes watershed is in pioneer or early seral stage structure (p. T-5). Extensive logging has occurred in the northern portion of the watershed where there is a moderate to high turbidity potential (Figure O-7, p. O-11), and deep slow-moving landslides, such as slump-earthflows, are the dominant failure process (p. A-2). This extent of human disturbance would classify the Sixes River as “*not properly functioning*” with respect to disturbance history.

Although the proposed actions would occur within Riparian Reserve adjacent to a fish-bearing stream, the project is within an existing recreation site, and is expected to “*maintain*” the current condition in regard to human disturbance history.

Riparian Reserves: In most parts of the watershed, large conifers are now scarce in the riparian zone, which is dominated by hardwood species and young conifer. The long-term supply of large wood has been reduced from riparian areas primarily by timber harvest and clearing for agriculture. Riparian vegetation and shade is lacking in agricultural valleys along the mainstem Sixes and Crystal Creek, having been replaced by grass pasture or by exotic vegetation (p. A-8). Large wood has been removed from the channel in association with placer mining, during some early logging operations, and during post-storm salvage (p. A-7, A-16&17). Although the watershed appears to be in a state of recovery, it is evident that the Riparian Reserve network is “*not properly functioning*” at present.

Because no trees would be removed, the project would occur within existing recreation sites, streamside myrtle and willow tree transplants are incorporated in the design, and a fence will be constructed to establish 20'-wide setback from the stream bank, the proposed actions were determined to “*maintain*” the Riparian Reserve baseline.

Landslide and Erosion Rates: Between 1943 and 1986, an estimated 5.6 times the natural landslide sediment volume was delivered to stream channels from National Forest lands (excluding the 1955 large debris flow in section 9, of unknown cause) (p. A-5). An assessment of landslides in Dry Creek and South Fork Sixes watersheds from 1943-1986 shows that sediment delivery attributed to road construction and timber harvest has occurred in the watershed for decades (p. A-25, A-29), and thus would indicate a “*not properly functioning*” condition for landslide rates and volumes.

The proposed action would occur on stable, low-gradient areas, thus would “*maintain*” the landslide and erosion rate baseline.