

OTHER DOCUMENT #2
 Source:
 - Curtis Anderson
 - Explains biological
 & geomorphic +
 overall selection
 criteria

History of Bank Rehabilitation Sites

1991 to 1993 – (Copied from the *Trinity River Maintenance Flow Study Final Report*, McBain & Trush, November 1997) USBR and USFWS constructed nine bank modification projects (originally labeled “feather edges”) as part of their pilot channel rehabilitation program to increase salmonid fry rearing habitat. For further information, refer to Chapter 10 of the McBain & Trush Report.

CHAPTER 10: PILOT BANK REHABILITATION PROJECTS EVALUATION

Bank Rehabilitation Site	River Mile	Date Constructed	Years Monitored	Constructed Low Water Channel Width (ft)	Number of Cross Sections
Bucktail	105.6	1993	1994-97	90	5
Limekiln	100.2	1993	1996-97	140	3
Steel Bridge	98.9	1993	1996-97	135	4
Steiner Flat	91.7	1991, 92, 93	1991-97	110	9
Bell Gulch	84.4	1993	1996-97	110	3
Deep Gulch	82.0	1993	1996-97	130	5
Sheridan Creek	81.1	1993	1991-97	170	6
Jim Smith	78.5	1993	1996-97	160	4
Pear Tree Gulch	73.1	1992	1996-97	65	7

Table 10.1 Bank rehabilitation project sites on the mainstem Trinity River.

1990's – Consultants for the Hoopa Valley Tribe, and staff from the USFWS office in Arcata went through air photo's to develop a list of potential restoration sites. 44 potential channel rehabilitation sites, 3 side channel rehabilitation sites, and two tributary delta rehabilitation sites were identified between Lewiston Dam and the North Fork Trinity River. This list of restoration sites were identified and discussed on page 274 of the USFWS Flow Evaluation Report. (USFWS, Trinity River Flow Evaluation Final Report, June 1999)

December 1996 and January 1997 – A series of El Nino derived winter storms produce higher precipitation throughout California. The Trinity River reaches a peak discharge of 69,900 cfs at the gage near Burnt Ranch on January 1, 1997.

1997 - 1999 – People involved in the Trinity Restoration Program noticed that the high flows from the January 1997 flow produced significant changes to the river morphology. The mainstem subcommittee of the Technical Advisory Committee decided that a re-evaluation of 47 restoration sites selected in the 1999 flow report need to be done.

1999 and 2000 – After many meetings of the mainstem subcommittee, we finalized a spreadsheet (Project rankings_12_5_2000.xls) with a final ranking based on biologic and geomorphic criteria. Then the mainstem subcommittee met again and did a final ranking based on all criteria. On January 23, 2001 I sent out an email with two attachments:

1. Project rankings_Final_Using_All_Criteria_Final_01_19_200.xls
2. 2001_01_22_Mainstem rehabilitation sites methods all Categories.doc

The following is the Word document attachment which was written by Jay Glase and John Lang from the FWS office in Arcata. This was their attempt to document the process used for the ranking of the restoration projects:

Explanation of Initial Mechanical Restoration Project Rankings

HISTORICAL BACKGROUND

The Mainstem Restoration Subcommittee originally met in September 1999 to begin the process of evaluating and prioritizing potential channel rehabilitation sites. This evaluation was to be used as information for those alternatives in the Trinity River EIS that included channel rehabilitation projects. At that time, there were 47 potential sites listed for construction under the Mechanical and Preferred Alternatives. At this meeting, the group developed some initial criteria for evaluating and prioritizing projects. These criteria included property ownership, cooperation of property owners, cost, biological and geomorphic criteria and others. It was decided at this meeting that biological and geomorphic criteria would be the primary categories for prioritizing projects. Other factors were not to be considered in the initial screening of project locations, but would be used as secondary screening criteria.

At the initial meeting, Scott McBain suggested that the locations currently listed on existing maps may not necessarily be the most appropriate locations for specific future project sites. High flows may have created substantial changes to the river morphology since these original locations were determined in 1995. It was determined at this meeting that some effort should be made to revisit these sites and record the most appropriate locations on 1997 aerial photographs. This would initially be based on the biological and geomorphic conditions at specific locations as stated above.

Scott McBain, (working for the Hoopa Valley Tribe), Russ Smith and Ed Solbos (Bureau of Reclamation) and Jay Glase (US Fish and Wildlife Service) rafted the upper reaches of the river from Lewiston to the Bucktail area looking for appropriate areas for project sites. (Curtis' note – this float trip occurred November 3-5 1999) We took existing maps with us so we could define where there was overlap with previously identified locations. Scott McBain and Jay Glase spent a few more days rafting the remaining section of river to the North Fork Trinity Confluence. Any site that appeared to be remotely appropriate for rehabilitation was drawn onto the aerial photos. We estimated potential length of project locations and the size of any riparian berm existing at the sites. Chinook salmon redds were also documented on the photos in order to see where spawning concentrations may be greatest. After several locations were identified, Scott McBain and Jay Glase developed a list of potential biological and geomorphic criteria to be used for prioritization.

CURRENT WORK SUMMARY

These criteria were presented to the entire Mainstem Restoration Subcommittee in the fall of 2000. However, some questions arose regarding biological and geomorphic conditions. Members of the subcommittee were given assignments to research specific information in order to address these concerns. Curtis Anderson from DWR volunteered to organize the new information and present it

at a subsequent subcommittee meeting. The next meeting was initially cancelled due to lack of information received, but those people that were given assignments were able to meet and refine the biological and geomorphic criteria list based on new and existing information that was available. This meeting was attended by:

Curtis Anderson	DWR Red Bluff
Ed Solbos	BOR Sacramento
Charlie Chamberlain	Yurok Tribe
Darren Mierau	McBain/Trush
Scott McBain	McBain/Trush
Jay Glase	USFWS, Arcata
John Lang	USFWS, Arcata

At this meeting, the following biological and geomorphic criteria were discussed as potential criteria for ranking projects. The initial list of criteria were:

Biological criteria:

- 1) Good chinook salmon spawning area
- 2) Near a tributary where coho and steelhead juveniles may exist, such that if juveniles leave the tributary to rear, sufficient habitat will be nearby.
- 3) Spawning density (redd superimposition)
- 4) Can the project benefit coho and steelhead overwintering habitat
- 5) Potential stranding locations at site
- 6) Is there existing good habitat nearby from which to build upon
- 7) Other species benefits

Geomorphic Criteria:

- 1) Near sediment supply i.e. tributary and/or eroding dredge tailings
- 2) Near a fine sediment source
- 3) Radius of curvature (the smaller the radius the better a project is self maintaining)
- 4) Ability of the channel to migrate
- 5) Amount of sand stored in berm (size of berm)
- 6) Source of cottonwood seed dispersion
- 7) Valley width for flood way, riparian, spoils.

We ultimately determined that these criteria could be combined into a few very important factors and reduced the total list to the two most important biological and two most important geomorphic factors.

The two biological criteria used for ranking projects were:

- 1) Proximity to salmon spawning locations and potential to provide rearing habitat. (Score 0-4)
- 2) Potential to reduce fish stranding. (Score 0-4)

The two geomorphic criteria used were:

- 1) Proximity to potential coarse sediment supply. (Score 0-4)
- 2) Potential amount of sand removed. (Score 0-4)

A location that satisfied a specific criterion extremely well was given a value of 4 for that criterion. Good, fair, poor, and "not at all" were ranked as 3, 2, 1 and 0 respectively. The highest score a project location could receive was therefore 16.

Redd distribution data and potential stranding locations were provided by Bernard Aguilar of CDFG and Jay Glase of USFWS. Stranding potential was also noted in project location descriptions provided by Scott McBain and Jay Glase. Geomorphic data was provided by Scott McBain from location descriptions.

We then began the process of reviewing specific information on each site and general biological and geomorphic information in the area of each project site. DWR provided aerial photos with project locations, ownership boundaries and chinook salmon redds identified. Scott McBain provided detailed information for each site, including estimates of berm size and potential amounts of sand that could be removed at individual sites. Locations were evaluated based on how well each criterion was satisfied based on information available and knowledge of the area. We used the photos with highlighted locations and evaluated projects moving from upstream to downstream (Lewiston to North Fork).

One of our goals was to determine from location descriptions, which sites appeared to be most appropriate before ranking even occurred. In this way, we could reduce the number of sites initially ranked so that we could develop a list of 20 to 30 good locations for ranking as soon as possible. Notes on project locations provided by Scott McBain had sufficient detail (combined with aerial photo observations) to determine if a project should be ranked during the first round of evaluations. If a potential project was not scored, the group determined if we should come back to that site later if necessary or if it shouldn't be ranked at all in the initial round. The following describes why projects were either not ranked or were listed as "come back to":

Not Ranked-

Some combination of:

- The river was already working the project site and it was best to leave it alone at this point.
- Too ambitious for a first year project (wanting to be more conservative the first year)

Come-back-to-

Some combination of:

- Spawning habitat and downstream rearing habitat were present at the site or in the vicinity, but the site description was such that it was not appropriate for this round of ranking.
- The project would make a better second or third year project due to size and complexity.
- A site may have good potential based on description, but may already have been "working" to some degree, so it would be appropriate to watch these sites and see if they continue to function or even improve after increased flows.

INITIAL SCREENING RESULTS

All projects were either given a score based on geomorphic and Biologic criteria, or were classified as come-back-to or not ranked. The results of this analysis are shown on two sheets of the Excel workbook (**rank by G&M Criteria** and **rank by river mile**). The mainstem subcommittee decided that only projects that received a geomorphic and biologic score of 12 or greater would be ranked by the other criteria. There was a total of 22 sites that had a geomorphic and biologic score greater than 12.

FINAL SCREENING RESULTS

The final criteria used to score the 22 sites are as follows:

- 1) Construction Equipment Access.
- 2) Property Ownership Approval.
- 3) Property Damage Risk.
- 4) Secondary Benefits.

Each of the 22 sites was given a score from 0-4 on each of the four criteria listed above for a total maximum of 16 points. The rationale for the scoring is detailed on the sheet labeled **Overall Criteria** in the workbook.

The final results are shown on the sheet labeled **Overall Ranking (Final Product)** in the Excel workbook. The final score from each of the 22 sites are shown in the light blue column, and are sorted by their final score. Also shown are the best guess at who owns the land the project sits on, and any detailed notes about the project. (Curtis' note – end of section written by Jay and John)

The methodology for ranking the restoration sites along with the final rankings were presented to the TAC at their meeting on XXXX. We received comments from the TAC and incorporated some clarifications into the final spreadsheet. A finalized version of the spreadsheet was distributed via email on XXXX (June 2001). I will finish this when I get my local email server back.

