

# INTRODUCTION

## Why the Manual is Needed

### Purpose

The purpose of this manual is to provide a user-friendly, fish-friendly guide for County road maintenance staff as part of each county's primary mission to provide a safe and open road system for the traveling public. The manual is intended to also be part of an evolving, proactive process by the counties of the northwestern region of California – Del Norte, Humboldt, Mendocino, Siskiyou, and Trinity – to address their mutual needs as part of the Five County Salmon Conservation Program.

As a group and individually, the counties will continue to compile and recommend the best available management practices for protecting local water quality and stream habitat while maintaining county roads and maintenance facilities. Each of the county public works /road /transportation departments already performs many preventative and remedial practices, but none had available a useful written compilation for use by their employees. These and other beneficial practices can now be shared through the manual, to be used as a daily reference for standard operating procedures and as a training tool by county road managers, engineers, supervisors, and crews.

Besides its practical need, the manual can also help serve a legal need for the counties. The most immediate need is to provide a way for road maintenance practices to be performed without unnecessary delays (and expenses) from the regulatory permit process. By clearly identifying the best practices that will be used regularly for protecting water quality and salmon habitat, the counties can assure the responsible agencies that these resources will not be harmed through their actions. As a result, permits for routine road maintenance practices should not need to be scrutinized under a lengthy permit process. Permits have become more challenging to obtain particularly since the late 1990s when coho salmon, chinook salmon, and steelhead became listed under the federal Endangered Species Act.

### Scope of Maintenance Practices Covered by Manual

This manual covers management practices related to the routine and emergency repair and maintenance of county roads and related facilities. Road maintenance includes actions taken to prevent erosion and/or the deterioration of a roadway, such as the cutbank, road surface, fillslope and all drainage structures. Other related facilities are bridges and county road maintenance yards. The replacement of existing structures with different types of structures, such as replacing a culvert with a bridge, is included. The manual also involves measures to protect the traveling public, such as snow and ice removal. Not addressed in this manual is the construction, or a major expansion or change in use, of such roadways and facilities beyond those which existed previously. The time scale to accomplish road improvements, such as the replacement of ineffective or old culverts, is expected to be over a 50 year period.

## Endangered Species Act Listings of Salmon and Steelhead

Several salmon species are in serious decline in the Pacific Coastal states. Many distinct populations (known as Evolutionarily Significant Units, or ESUs) of Pacific salmon or steelhead have been listed in recent years under the federal Endangered Species Act (ESA) as threatened or endangered. Coho salmon (also known as “silver” salmon), chinook salmon (also called “king” salmon), and steelhead (the ocean-migrating form of rainbow trout) are presently listed in all or parts of the five county region of Northwestern California.

The National Marine Fisheries Service (NMFS) is charged with the responsibility for implementing the provisions of the ESA for ocean species like salmon. As a result, the agency cannot allow the “take” of these listed species through even unintentional harmful actions, such as road-related stream sedimentation or culvert blockages to fish passage. The only exception provided in the Act is where the “take” is associated with an approved program by NMFS. “Take” exceptions can be provided for under Section 4(d) (with a special rule for certain practices), Section 7 (for federally funded or permitted activities), and Section 10 (for non-federal activities) of the ESA.

## Five Counties Salmon Conservation Program

Soon after the first salmon species (coho) was listed as threatened in 1997, elected supervisors from the five county region of the listing (also known as the Southern Oregon-Northern California Coasts ESU, or SONCC) met and agreed that a cooperative venture to address possible local strategies was in order. The Five Counties Salmon Conservation Program (“5 Cs”), also referred to in the past as a plan or a process, became the result. The term “salmon” is intended to generally connote anadromous forms of salmonids, including steelhead.

A University of California (U.C.) study was commissioned by the 5 C Program to evaluate the effects of Northwestern California county regulations and management on salmonids and their habitats (Harris and Kocher, 1998). One of the final report’s conclusions regarding County Maintenance Mitigation Practices was:

*“The lack of written road and bridge maintenance policies and procedures makes it difficult to determine if practices which contributed to protection and/or maintenance of fish habitat and water quality are standard operating procedures or extraordinary efforts of individuals.”*

As a result of this finding, the U.C. report made three recommendations:

1. Some maintenance procedures can be improved, especially through implementation of the five county work group and training.
2. Road and bridge maintenance policies should be institutionalized so that they become standard organizational practice, rather than the result of individual initiative.
3. There should be a continuing emphasis on education and training of personnel in biological resources management. Exceptional cases of fish friendly road improvements already existing in the counties, such as Siskiyou County’s French Creek Watershed project, should be used as examples.

Another purpose of this manual is to address the above recommendations.

## Clean Water Act

Beyond endangered species listings are the regulatory demands of the Clean Water Act. Permits have long been required from the Corps of Engineers for Section 404 of the Act for any activities that might involve the discharge of dredged or fill material into “waters of the U.S.”. More recently, the Environmental Protection Agency (EPA) and the State Water Resources Control Board have issued new regulations that also can affect road maintenance activities. Storm water discharge permits (Section 402) will soon be required for county road maintenance yards and municipal facilities with storm water systems. For streams that are listed as “impaired”, the agencies are requiring a remedial strategy calling for the establishment of Total Maximum Daily Loads, or TMDLs, for each pollutant. All of the major north coast streams are listed for sediment and/or temperature, and limits on the amount of erosion and sediment that will be allowable from roads is being addressed. With this manual recommending methods to reduce erosion and protect water quality, the counties are proactively tackling these issues.

## Scope of Road Maintenance Needs

The importance of having a manual to address County road maintenance needs related to stream and watershed conditions in Northwestern California is indicated by the extent of the county road systems, as indicated in the following tables:

Table A. Estimated Miles of County Maintained Roads (1/01) in Region

County	Surfaced County Road Miles	Unsurfaced County Road Miles	Total County Road Miles
Del Norte	302	199	501
Humboldt	907	300	1207
Mendocino	706	312	1018
Siskiyou	808	556	1364
Trinity	455	245	700
Total	3,178 (66%)	1,612 (34%)	4,790

Table B. Estimated County Maintained Culverts & Stream Crossings (1/01) in Region

County	Culverts <sup>1</sup>	Bridges	Low Water Crossings
Del Norte	~2000	32	0
Humboldt	~3000	162	3
Mendocino	~2500	157	19
Siskiyou	~4000	175	0
Trinity	~5000	93	9
Total	~16,000 (est.)	619	31

<sup>1</sup> Culvert estimates include stream crossings and cross-drains.

Two inventories are being sponsored by the Five County Salmon Conservation Program to provide better numbers: County Road Sediment Source Inventory and County Culvert Fish Migration Barrier Inventory. As of Spring 2002, the Road Sediment Inventory had surveyed 38% of all of the county road miles in the region but had not yet begun in Siskiyou County. Of

1,700 miles of road surveyed, it had identified over 7,000 sites needing treatment to prevent the future delivery of sediment into streams from county roads. Priority sites for treatment were identified, with two-thirds of the potential problems related to stream crossings. However, routine maintenance activities can help prevent many potential problems documented in the Inventory from occurring. In addition, the Culvert Barrier Inventory has identified and prioritized about 250 fish migration barriers on the county road systems, with over 30 barriers since corrected or funded for replacement (Trinity County 2002a, b).

## **How the Manual was Developed**

Categories of critical road, bridge and maintenance activities that have the potential to adversely affect water quality or salmon habitat were initially identified by the project managers and consultants. Existing road maintenance and erosion control manuals were reviewed for relevant policies and practices. Publications from both within and outside of California were used, produced by entities such as Association of Bay Area Governments, Pacific Watershed Associates, California Dept. of Transportation (Caltrans), California Regional Water Quality Control Board, Oregon Dept. of Transportation (ODOT), Washington Dept. of Transportation (WashDOT), USDA Forest Service, and International Erosion Control Association. Some contents were relevant to county road maintenance issues, but not all.

### **ODOT's Manual & 4(d) Rule Special Exception**

In particular, the Oregon Dept. of Transportation (ODOT) manual, "Routine Road Maintenance - Water Quality and Habitat Guide" (July 1999), deserves noting. NMFS has indicated in its formal comments how this program "greatly improves" protections for listed fish that might be affected from a range of routine maintenance activities "by minimizing the activities' impacts on streams". While carrying out the agency's basic mission to provide a safe and effective transportation system, the ODOT program also works well within the mandates of the ESA and the Clean Water Act (see Chapters 1 & 2 for more information on these acts and issues). The ODOT plan has also been accepted at the state level for the agency's training, documentation, reporting, and accountability.

As a result of the manual's comprehensive content, the National Marine Fisheries Service has found it not necessary or advisable to apply the "take prohibitions" under the ESA to routine road maintenance activities conducted by employees or agents of ODOT or other entities if their program complies substantially with that contained in the ODOT guide or has been determined to meet or exceed the protections provided by the ODOT guide (NMFS, 2000). This specific exception was provided for in the July 10, 2000 rule by NMFS under the Act's Section 4(d), which is one of the legal means for local government to obtain permission to continue actions which could possibly cause any unintentional take to a listed species.

NMFS encourages counties to follow the ODOT example: "Any jurisdiction wanting its routine road maintenance activities to be within this exception to ESA's take prohibition must first commit in writing to apply management practices that provide protection equivalent to or better than those provided by the ODOT guide." The ODOT routine road maintenance plan has been accepted and implemented by the Association of Oregon Counties within each of the counties'

ordinances. Similar assurances for implementation and monitoring must accompany a strategy for the Five County region if NMFS is to grant an exception to the take prohibitions for ESA listed species.

## **Five Counties Road Managers Committee**

Since 1997, the counties within the northwestern region of California have worked closely together to address the local impacts of the initial listing of coho salmon and the subsequent listing of chinook salmon and steelhead trout under the Five Counties Salmon Conservation Program. Work began on this manual in late 1999, with Trinity County and Humboldt County alternately serving as project managers for the grant funding received from state and federal sources that was used to hire consultants in its preparation. Closely overseeing the process was the Five Counties Road Managers Committee, composed of several representatives of each of the counties' public works or transportation departments. Meetings were held every few months to review progress and make recommendations on content. Practices were also demonstrated and debated during the annual "Roads, Salmon, and Water Quality Workshop" and field tours held in Trinity County for road maintenance managers, engineers, and supervisors in September from 1999 to 2001. Upon completion of the third draft in mid-2001, the manual was presented to regulatory agencies for comment. Following discussion and incorporation of proposed changes, this fourth – or administrative – draft is now being released for Public Review and formal comment.

## **Manual Format**

The intent is to provide a user-friendly format that can be easily updated. To ease updating, the pages are three-hole punched and kept in a three-ring binder instead of being bound. Replacement pages can be added and old ones retired without affecting the order. Drawings and other graphics were borrowed from existing sources where relevant and new drawings or photographs added where needed to help depict a particular practice. Updates of this manual are anticipated, based on feedback, monitoring, and other "adaptive management" practices, and are provided for under policies proposed in Chapter 10.

Each category of Maintenance Activities is located under a separate chapter. Within each chapter are uniquely numbered parts and sub-parts for the various topics. Within each chapter / part / sub-part are these standard headings:

- ❖ Topic Title
- ❖ Description of action
- ❖ Environmental Concerns
- ❖ Best Management Practices (BMPs)
- ❖ Permits

Chapters 1 and 2 provide background information to help explain the natural setting (watersheds, streams, and fish), road management principles, and the legal setting. Chapters 3 through 9 describe different categories of maintenance activities and the recommended practices for each. Chapters 10 and 11 recommend pragmatic monitoring and training programs for the county road maintenance departments. Information sources, including references, are found in Chapter 12.

The appendices provide more specific information about Permitting and Erosion Control Practices – topics that will likely need regular updating.

### **Other Tools**

This manual is only one new tool available to the counties to address road-related issues. Grading ordinances for private roads and updated county road standards for new road construction are also being prepared by one or more of the counties and can be used as models for the others.

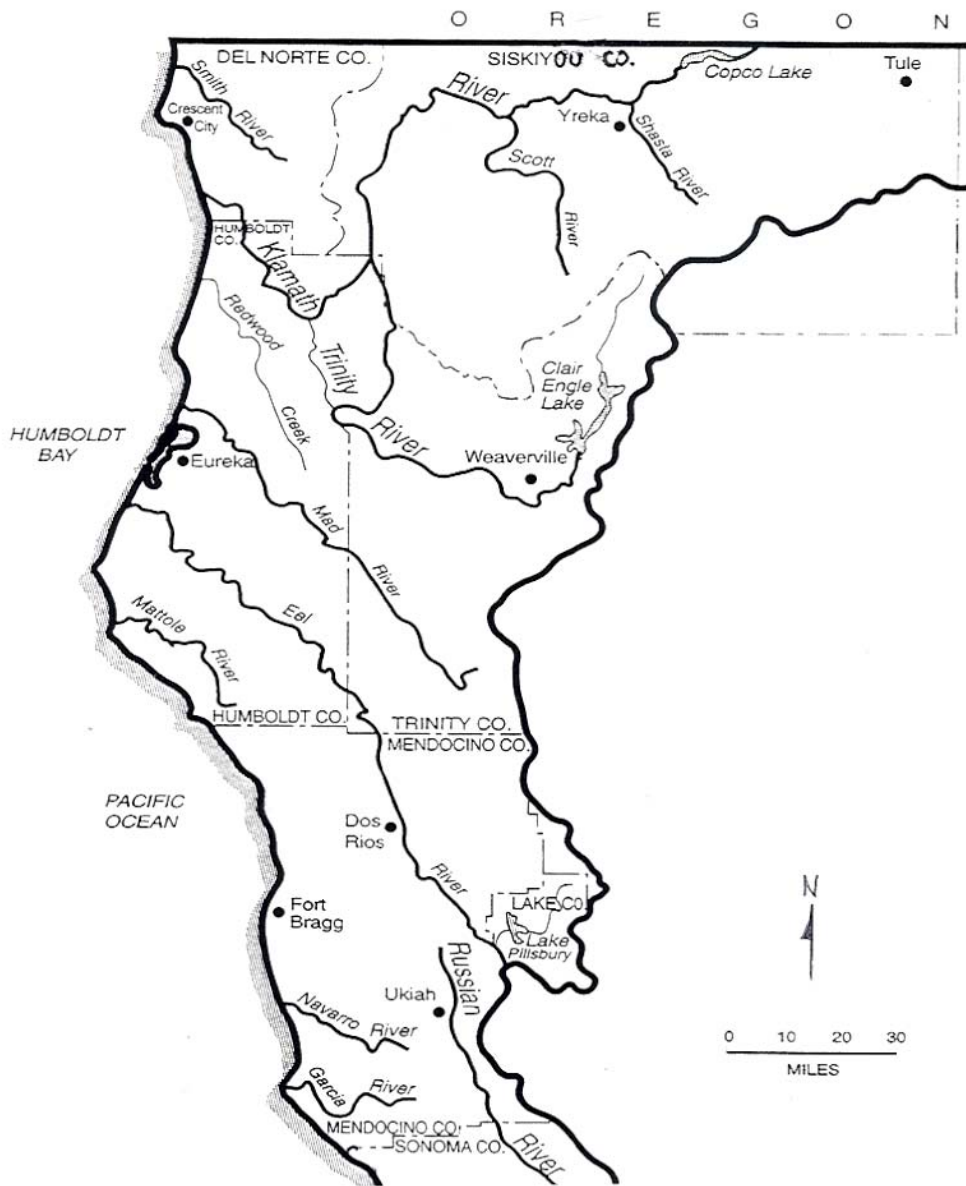


Figure 1. The Northwestern Region of California, indicating the five counties and their major rivers  
 (Source: North Coast Regional Water Quality Control Board)