

## KLAMATH FOREST ALLIANCE

February 28, 1994

Alvin Lewis  
1005 Kidder Creek Rd.  
Ft. Jones, CA 96032

Dear Alvin:

As per your request here are KFA's concerns about the "Scott River Riparian Zone Inventory and Evaluation". Please forgive the delay - I've been overwhelmed with work.

Our concerns can be classified most easily as those pertaining to the study itself (Content) and those pertaining to its usefulness as a guide to choosing projects to help at risk fish stocks (Context).

### CONTENT

\* The evaluation of vegetation considered crown closure only. Optimum vegetation can consist of a dense stand of Willow. Notwithstanding your excellent comments on cottonwood, there was no distinction made in the evaluations between overstory cover (tall trees like cottonwood and pine) and understory vegetation (eg willow, hawthorn). Apparently, your "understory" is equal to ground cover?). While this is fine from a soil viewpoint from a fisheries viewpoint (shade, large woody debris) information on overstory and understory tree canopy and a different definition of "optimum vegetation" would have been very useful in planning interventions. Also there was no distinction made between native and exotic vegetation. From an ecosystem standpoint such a distinction would have been useful.

\* Evaluation of the need for fencing apparently did not consider whether investing in fencing would achieve livestock exclusion for that section or reach. It appears that each bank was viewed independently. It is therefore impossible to know if a given fencing project/investment would achieve cattle exclusion. This is important information in allocating limited fisheries restoration dollars.

\* Bank Stabilization by rip-rap was the only alternative evaluated. I am told by SCS personnel that there are alternatives. I believe both landowners and those allocating fisheries restoration funds should have a choice of all alternatives, including an indication of costs and benefits.

\* Areas deemed to need bank stabilization received 5 points; slope planting and fencing 3 points; irrigation and tree or shrub planting 2 points. The differentiation in points awarded

is not justified in the report. There is an obvious bias. The result is that sites deemed to need rip-rap/bank stabilization automatically become the highest priority. This does not necessarily reflect cost vs benefit to fish.

\* There was no attempt to identify or prioritize areas based on fisheries values, for example to assign rating points based on presence of spawning or rearing. This would have been useful in selecting projects which would have the most benefit for fish.

\* In general, the study lacks identification of existing and potential bank swallow habitat. (I do understand that this issue was just emerging when the field work was completed). Integration of the data collected by DFG would make the study more useful as a guide to project selection.

#### CONTEXT

The current situation is that anadromous stocks and other aquatic resources throughout the Basin and the Pacific Coast are at risk of extinction. This is the result of cumulative degradation of aquatic, riparian and ocean habitat as well as other factors including fishing pressure. The resources available to address this situation are grossly inadequate to the task. In the past restoration efforts have focused on the most degraded habitats. Most scientists who have closely investigated the situation now believe that was a mistake. The most supported and supportable strategy to address the crisis (prevent extinction of a host of locally adapted, genetically distinct anadromous stocks) is to identify and secure the best remaining habitat for each at risk stock and then begin working out from these "strongholds" (see enclosed article and excerpt from S.Fk. Trinity CRMP minutes). If we were to follow that strategy on the Scott River we would look for the locations at which each stock at risk (coho, chinook, steelhead) are doing the best (spawning and rearing) and concentrate on securing those areas first. If rip-rap is part of the appropriate treatment in those areas KFA would support it. The study does not take such an approach in its prioritization of projects.

Another element of a strategic approach is to identify limiting factors and concentrate on those. What are the factors limiting each in-river life history phase in the Scott River (in migration, spawning, rearing, out migration)?

If sediment is deemed a limiting factor, the next questions are:

- \* Where is the sediment coming from?
- \* What is the most cost effective method to reduce sediment input to acceptable amounts?

In each case, I think the data suggests treatments up slope; not the banks in the Valley.

If temperature is a limiting factor, the question is: What actions will give us the most positive impact on temperature for the amount of money spent? I don't know the answer.

If the most important limiting factor is flow (either in general or at specific times) then perhaps we should be spending the limited fisheries restoration dollars on increasing flows and not on the banks.

In conclusion, I hope you realize that KFA's "opposition" to rip-rap has only two components:

1. We believe limited dollars and an aquatic crisis mean we must use our limited fisheries restoration dollars strategically. We are not convinced that investing in rip-rap is a high priority in a strategic approach to the aquatic crisis in the Scott River. If sediment is the limiting problem, we believe fisheries dollars are better spent up slope.

2. Until there is a Habitat Conservation Plan in place for the Bank Swallow, treatment and disturbance of bank swallow habitat should be avoided.

We have no opposition to using agricultural dollars to stabilize banks with rip-rap as suggested in your study.

We believe your study provides valuable information which will be extremely useful in planning strategic interventions to benefit anadromous fish and other aquatic resources. When coupled with information on spawning and rearing it will help the CRMP plan integrated projects which will have the greatest benefit for fisheries and represent a good investment of limited fisheries restoration dollars. The CRMP's Fisheries Committee, of which I am a member, intends to use it in that manner.

Alvin, your work in Scott Valley over the years is a model of dedication and perseverance. I personally value it very highly and I know KFA's directors and activists value it as well. We support the effort of the RCD, SCS and the Valley's agricultural leaders to stabilize the River's banks to the extent feasible without threatening species like the Bank Swallow. However, we cannot support following the priorities in the study when fisheries restoration money is the funding source. Take the #1 priority as an example. From what we know, this area does not now support spawning or rearing (see attached map from 1992 spawning survey). It is simply too full of sand. Even holding habitat is severely limited. Investing scarce fisheries restoration dollars at that location simply does not make good strategic sense, particularly for high priced items like rip-rap. In my opinion, fencing and vegetation planting would make sense at that location only if both sides of the river were fenced and the result would be exclusion of cattle from an area of the river during critical periods.


LETTER TO ALVIN LEWIS

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The example illustrates KFA's concern with using the study by itself as a guide to project selection with fisheries restoration dollars.

I would be happy to discuss any of these items with you at your convenience.

Sincerely yours,



Felice Pace

enclosure

cc: Sari Sommerstrom & Dave Black (SV-CRMP), Dave Krone (Siskiyou RCD), Ron Iverson (FWS), Dennis Maria (DFG), Jay Power (FS), Steve Lewis (ERO), Don Brazil, Mary Roehrick, Ken Maurer



# Mending Rivers,



BY DAVID BALES

**W**atersheds throughout the Pacific Northwest are significantly degraded. One result of this is a severe loss of habitat for Pacific salmon and other riverine-riparian species. A fundamental key to recovering Pacific salmon is to protect and restore the habitats upon which these magnificent fishes depend. Much of the salmon's habitat has already been destroyed or blocked from the fishes' access, but a few good areas remain. Retaining these strongholds will be critical to recovery of the salmon and other species throughout their range. A Watershed and Salmon Habitat Restoration Act is urgently needed to assure that remaining productive areas are kept healthy.

David Bales works for the Pacific Rivers Council in Eugene, Oregon.

The term "salmon" will be used generically throughout this document to refer to all the native salmonids: Pacific salmon; steelhead; other trouts; and the chars, including bull trout, and "habitat" is used to address riverine ecosystem processes that support salmon and other aquatic and riparian dependent creatures as well as the salmon spawning and rearing areas themselves. "Riverine Biodiversity Management Areas" will be used to refer to refuges for at-risk salmonids and other riverine-riparian species.

A Watershed and Salmon Habitat Restoration Act should 1) identify the remaining healthy watersheds and establish these areas as refuges from future degradation; 2) outline appropriate management of the habitats that connect watershed refuges, including riparian and floodplain ecosystem protection across the

*Salmon continued on pg. 24*

# Restoring Salmon

### Salmon continued

landscape; and 3) establish restoration programs that secure and expand healthy riverine habitats and create jobs. The three elements are part of a comprehensive package, and will almost certainly fail if implemented alone or in some limited combination.

The Scientific Panel on Late-Successional Forest Ecosystems created a model for watershed and salmonid habitat recovery programs, and specified watersheds to anchor that program in the western areas of the Pacific Northwest. The Panel identified 137 watershed-level salmon refuges on public land; detailed some of the management changes that would be necessary to ensure their survival over time, including improved riparian (streamside) forest protection across all federal lands, prohibitions on new roads in roadless areas, reduction in the road program across all federal lands, extended rotation age within refuges; and finally, the Panel called for systematic watershed restoration. Enactment of this model is needed regionwide. Conceptually parallel efforts are in preparation now by The Eastside Forests Scientific Society Panel for much of the balance of the Pacific Northwest and the Sierra Nevada. Subsequent efforts will be necessary in the Great Basin and the Rockies.

Not all parts of the riverine landscape are equally important salmon habitat. A large share of the current production of salmon occurs in "hot spots" — generally, intact, complex, low-gradient alluvial reaches within largely intact watersheds. These hot spots of high quality habitat — where they still exist — are disproportionately important in maintaining current populations, and may be the sources for migrants that could eventually recolonize degraded areas as those areas recover. Further loss of these hot spots would be particularly destructive both to current populations and to eventual salmon recovery. Favorable conditions in these hot spots can only be maintained if relatively natural conditions are maintained or restored within the watershed, so that reasonably normal rates and patterns of flow of sediment, water and nutrients are delivered from the watershed to the stream.

Existing ecologically significant old growth combined with existing Wilderness Areas, National Parks, Wild and Scenic Rivers and other legislated reserves form the only existing anchors of watershed protection and the base for eventual recovery. However, the protection is inadequate. A Watershed and Salmon

Habitat Restoration Act must be a central pillar in the resolution of ancient forest and endangered salmon debates. Watersheds regionwide are highly imperiled, however, and if ancient forest issues remain unresolved, consideration must be given to free-standing watershed and salmon habitat restoration legislation.

Restoration is a cornerstone of the proposed legislation because restoration is good economics as well as good science. Both the direct restoration work that is needed to secure the existing patches of good habitat within watersheds, the return of salmon themselves, and other potential benefits such as maintenance and recovery of multitudes of at-risk riverine-riparian species and increased summer flows are clearly in the best economic interest of the Pacific Northwest.

Restoration is necessary because watersheds regionwide are severely degraded and only a small fraction of historical salmon habitat remains highly productive today. Even those remnants habitats are subject to ongoing degradation caused by (or accelerated by) human activities. The productive ecosystem and habitat that remains tends to be high up in the watersheds, in the more remote tributaries where the degrading effects of land use activities have, as yet, been less severe than in the agricultural and urban lands in the valleys.

Historically, watershed ecosystems and salmon habitat were degraded due to the combination of agriculture, urbanization, damming and channelizing of rivers, and other practices. Over time, these activities have also degraded once productive lowland habitats. Highly productive habitat remains only in lightly impacted mid-basin and headwater refuges, higher up in the watersheds. The remaining productive areas are threatened by the land uses that are common in headwater areas — particularly logging, grazing and roadbuilding.

The watersheds that hold the remaining productive salmon habitat are the key to eventual recovery of the riverine systems and thus of salmon. However, even without any new human intrusion into these areas, they remain seriously threatened: during the severe winter storms that are natural to the Pacific Northwest even the best watersheds will be severely degraded by landslides and sediment torrents of human origin. The existing forest road systems represent the largest single source of potentially devastating sediment. The 1990 Skagit Val-



## A Proposed First Year Restoration Budget for Gang of Four Watersheds

The first step in any realistic regional watershed and salmon habitat restoration program must be to secure the watersheds with the remaining high quality salmon habitat. The Scientific Panel on Late Successional Forest Ecosystems identified 137 public land watersheds housing critical habitat for salmonid stocks and species known to be at risk of extinction. Unfortunately the 137 watersheds are themselves at risk from the cumulative effects of logging, roadbuilding, and natural events.

The following expenditures would be necessary to help secure those 137 watersheds from catastrophe during severe winter storms. Once secured, these watersheds can serve as the anchor of a regionwide restoration effort. The largest single task needed is heavy equipment work to reduce or eliminate potential landslides and sediment torrents, triggered by past logging and roadbuilding.

At this time, projected cost of the program would be \$156,832,440, and would generate income for 7,121 to 11,054 jobs — using wage scales and indirect employment models from Alternatives for Management of Late Successional Forests of the

Pacific Northwest.

More than 65% of the total budget would be direct contracts with private industry — over \$100,000,000. The remaining 35% expenditures would primarily benefit individual Forest Service Ranger Districts — who are significant employers in the small communities where they are frequently located. Subsequent expansion of the program to the host of other west side watersheds and to the east side would be of substantial benefit to the entire region.

Budget Item	Dollars:
1) Sediment plans: 9030 mi <sup>2</sup> @ \$900.00/mi	8,127,000
2) Mapping: 9030 mi <sup>2</sup> @ \$500.00/mi	24,515,000
3) Earth Moving: 10 million yds <sup>3</sup> @ 7.50/yd <sup>3</sup>	81,270,000
4) Contract Oversight: 7.5%	7,043,225
5) Effectiveness Monitoring: 12.5%	12,619,000
6) External Review: Ongoing	1,396,000
5) Programmatic EIS:	1,500,000
6) Watershed-level EAs: 137 @ \$25,000	3,425,000
7) General Overhead and Administration: 33%	36,937,215
<b>Total</b>	<b>\$156,832,440</b>

ley (Washington) floods demonstrated the risk that faces salmon across the Northwest.

The most urgent watershed and salmon habitat restoration task in the region is therefore the immediate prevention of landslides, mass erosion and sedimentation in the remaining healthier key watershed/salmon refuges. Insofar as possible, watershed refuges must be secured from the human-caused consequences of the next great winter storms. Without "stormproofing" the key watersheds, wild salmon and many other riverine-riparian species will continue to be lost and regional watershed and salmon recovery will be substantially delayed, perhaps prevented. Stormproofing the remaining healthier key watersheds is just the first step, however. Following this, watershed level restoration strategies must be implemented. This process includes identifying and protecting the best remaining habitat patches found throughout the riverine system, linking these areas through riparian restoration and eventually expanding the healthier areas. Thus, restoration should be built upon the best remaining key watersheds and habitat patches, and not on the speculative and immensely costly strategy of focusing on the most degraded systems and segments.

Watershed and salmon habitat restoration is expected to have substantial economic benefits to the region. We estimate that stormproofing the 137 Watersheds identified by the Scientific Panel should result in the creation of 7,000 to 11,000 direct and indirect jobs in

the region over the period of implementation. Restoration of the habitats lower down in systems and expansion of the stormproofing program to the balance of the coastal Pacific Northwest and the interior Pacific Northwest would considerably expand the economic benefits.

Restoration proposals have traditionally been aimed at recovering the most degraded stream segments rather than protecting, linking and expanding the healthier areas found throughout a riverine system. In general the traditional strategies have not worked. While restoration priorities that target "the worst first" are intuitively appealing, in fact they are unconscionably risky — such programs let the good areas continue to deteriorate, while investing in the speculation that bad areas can be made good. In truth it has not been shown that seriously degraded watersheds can be restored nor that the salmon populations and other species they once supported can be recovered. In the meantime, traditional programs neglect to secure the rare prime areas that remain, and have even accelerated human disturbances. Speculative work in degraded areas must not be allowed to substitute for an affirmative effort to protect the remaining healthier watersheds from known threats, and then to wrap restoration programs around those areas.

In the context of key watersheds with prime salmon habitat that is anchored by ecologically significant forest reserves, legislation is needed that would direct and fund the establishment and restoration of key watershed/salmonid refuges, and plan for wider watershed recovery. FW

## A Framework for a Watershed &

### PACIFIC NORTHWEST WATERSHED AND SALMON HABITAT RESTORATION ACT

*It shall be the policy of the United States to establish, protect, and restore a national system of Riverine Biodiversity Management Areas and connecting riverine habitats; and to aid rural communities strongly affected by changes in forest management through substantial investment in riverine restoration activities and training.*

#### SECTION ONE: Riverine Biodiversity Management Areas

1. The Secretary of Agriculture and the Secretary of Interior shall promptly, and not later than within one year, adopt regulations that establish a system of Riverine Biodiversity Management Areas (RBMA), RBMA management, restoration, and long-term monitoring. RBMAs are habitats delineated on watershed boundaries that convey protection to biotic communities at temporal and spatial scales sufficient to recover threatened species and maintain riverine-riparian biodiversity. The Secretaries shall:

A. Identify RBMAs. RBMAs shall be generally watersheds greater than 30 square miles that meet the criteria established in the Alternatives for Management of Late-Successional Forests of the Pacific Northwest or other equally protective criteria that the Secretaries shall find more appropriate to other regions:

1. Where RBMAs or key watersheds have already been identified by the Scientific Panel on Late-Successional Forest Ecosystems or the Eastside Forests Scientific Society Panel, the Secretaries shall adopt changes specified in I (B) and subsequent sections.

2. In any region where RBMAs have not been identified they shall: convene an independent panel, consistent with the Panels in I(A)(1), and cause that panel to identify RBMAs, consistent with the intention of this Act.

B. Identify the threats to the integrity of the RBMAs over the time periods required to reestablish other important riverine habitats and connecting habitats. These findings shall be reported to Congress within one year of any RBMAs identified in section I(A).

C. Amend the Forest Plans, Resource Management Plans, and other equivalent plans in order to adopt RBMA management regulations consistent with the standards in Table Five of the Alternatives for Management of Late-Successional Forests of the Pacific Northwest or other equally protective criteria that the Secretaries shall find more appropriate to other regions. Amendments will be prefaced by analysis and description of the rates patterns and intensity of natural disturbance within each RBMA. At a minimum, amendments shall:

1. Establish appropriate harvest rotation age.
2. Protect old growth forests.
3. Withdraw unstable slopes and erosion prone areas from the timber base.
4. Establish appropriate grazing restrictions.

D. Minimize or eliminate human caused risk to the RBMAs identified by the Scientific Panel on Late-Successional Forest Ecosystems and the Eastside Forests Scientific Society Panel. In addition to whatever other steps may be required to minimize these risks, the Secretaries shall minimize:

1. Inventory and map refuge geology hydrology and soils.
2. Map land use history and disturbance to vegetation, soils and streams.
3. Map and prioritize sediment sources.
4. Treat priority sediment sites.
5. Report yearly on cost-effectiveness monitoring.
6. Repeat step 2 yearly on the basis of monitoring.

E. Designate a network of the most intact "Benchmark Watersheds", and add them to the Research Natural Area system or other equivalent system. Benchmark Watersheds are areas that meet the criteria in Section I(A) and that have the characteristics of relatively intact riverine ecosystems that can serve as long-term monitoring and "control" watersheds. Research Natural Area (or other equivalent area) restrictions shall be sufficiently stringent to ensure permanent protection of Benchmark Watersheds.



## Salmon Habitat Restoration Act

sheds. The United States Geological Survey shall develop a monitoring program for these watersheds. Monitoring these control watersheds would provide the baseline data against which to measure the success of restoration.

F. The Secretaries shall convene a panel of independent scientists to review and report on the management of RBMAs, and shall publish their report within one year.

### SECTION TWO: RIVERINE HABITATS CONNECTING RBMAs

II. The Secretaries shall, without delay, adopt regulations that protect and restore connecting riverine habitats, insofar as possible from the headwaters to the sea, including but not limited to the following:

A. Forest Plans, Resource Management Plans and other equivalent plans shall be amended to adopt management regulations consistent with the purposes of this Act, particularly including regulations implementing the riparian standards in Table Five, in *Alternatives for Management of Late-Successional Forests of the Pacific Northwest*, Johnson, et al., 1991.

B. The United State Geological Survey shall promptly determine water quantities sufficient for the recovery of all native riverine-riparian species in each RBMA and for migration corridors to the RBMA. The Secretaries shall ensure protection of those flows.

C. No agency or department of the federal government shall issue any license, permit or exemption for any dam, diversion, electrical generation or similar facility on any federal lands with identified Section I RBMAs until that agency has established a "Protected Rivers Program" that identifies river reaches that contribute to the ecological functioning of the RBMAs. No license, permit or exemption shall be issued in Protected River Areas. Protected River Areas shall be withdrawn from mineral entry.

D. The Secretaries shall convene a panel of scientists to review and report on the management of riverine habitats that connect RBMAs, and shall publish their report within one year.

### SECTION THREE: ROADS

III. The Secretaries shall create a Road Management Program on all federal lands, with the aim of reducing and minimizing road system mileage, substantially improving road drainage, and reducing sediment.

A. No new road shall be established in any inventoried roadless area.

B. Roads within each RBMA shall be prioritized for removal, on the basis of their potential for delivery of sediment to active channels of streams that bear sensitive riverine-riparian species, or that drain to such streams.

C. On all remaining roads in each National Forest and BLM District, National Wildlife Refuge or other federal management area a systematic drainage program shall be promptly adopted, if not already in place, with priority attention to roads that deliver or may deliver sediment to active channels, as in III(B).

D. The Secretaries shall convene a panel of independent scientists to review and report on the management of roads, and shall publish their report within one year. A yearly review of Road Management Program will be made as part of the performance rating of each Forest Supervision, Regional Forester, District Manager, and State Director.

### SECTION FOUR: EXTERNAL REVIEW

IV. The Secretaries shall convene a panel of independent scientists and economists to develop criteria for the identification of other important riverine habitats and report to Congress on the direct and indirect economic effects of protecting, reconnecting and restoring such habitats. The Panel shall report within one year.

### SECTION FIVE: FUNDING

A. \$50 million per year for three years shall be appropriated for implementing Section I(D). Contract size for sediment treatment contracts shall be no more than \$50,000 so that they may most closely accrue to local firms and communities.

# Scott River - Redds

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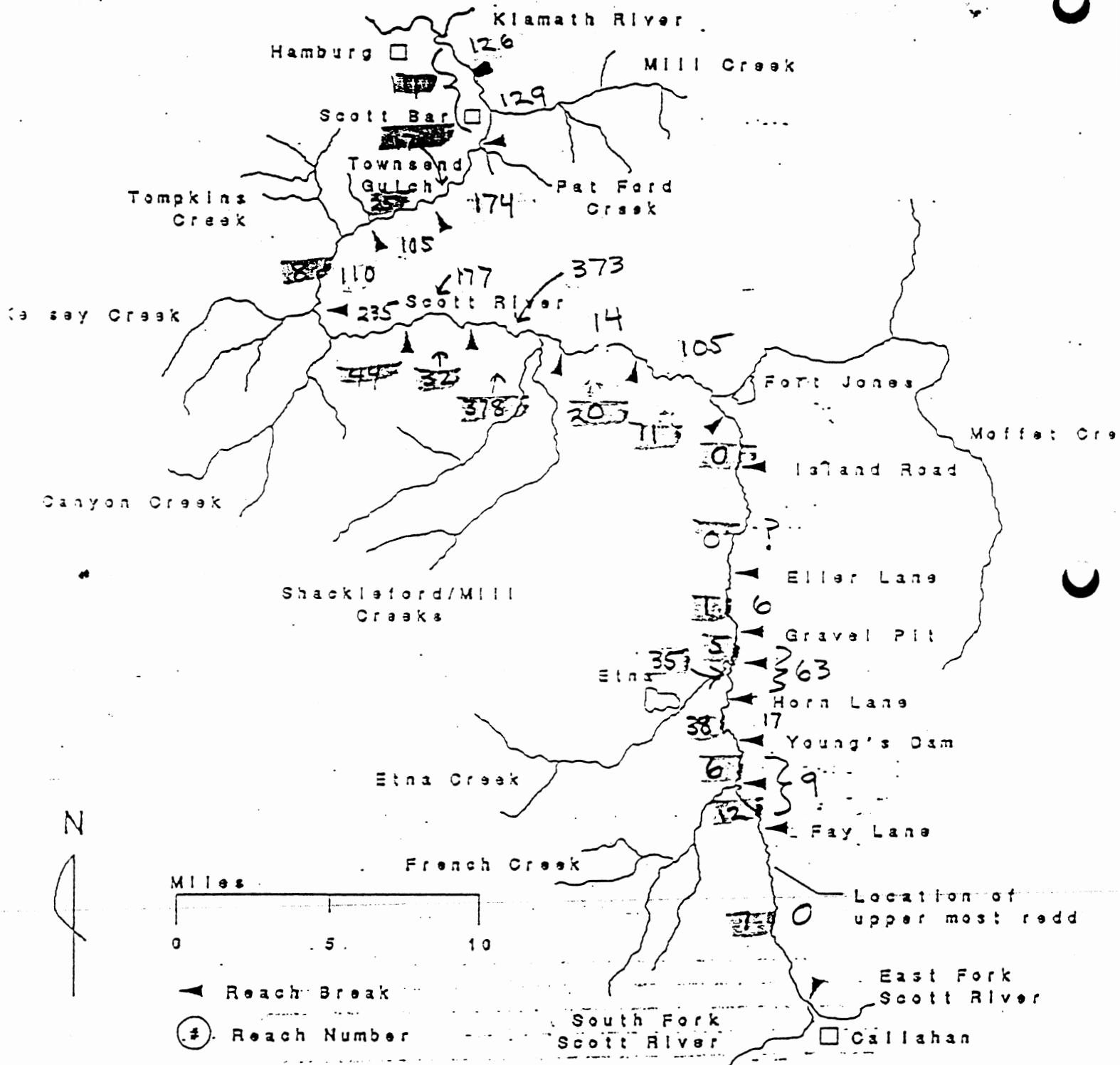


Figure 3. Reach-delineations of the Scott River for the 1992 chinook salmon spawning survey.

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**Coordination with USFS restoration plans**

In response to the President's Pacific Northwest Forest Recovery Plan, some limited funding now appears available to each Forest for watershed improvement projects within Key Watershed areas, including portions of the South Fork Trinity River. We understand you and your staff are busy planning on how to cost-effectively expend these restoration funds.

In the spirit of cooperation, we would like to offer for your consideration several practical suggestions on what can be constructively done to *put local people to work* while also *implementing meaningful restoration*, given the short lead time available for planning for this year's work. Our suggestions are based on our collective technical expertise and insight into the basin, as well as our knowledge of the needs of the local community.

**1. Prioritizing Watershed areas for treatment**

**1<sup>st</sup> Priority - Watershed protection:** We suggest that initial expenditures be aimed at protecting the best of the Key Watershed areas, those areas with the healthiest, highest numbers and most diverse populations of anadromous fish in the South Fork. This first-action strategy, *protecting the best of the remaining habitat and fish populations*, has gained acceptance in the last several years. This involves the concept of "refugia", and focuses efforts on immediately "*erosion-proofing*" all basins with high fisheries values, and "*decommissioning*" non-essential roads or roads which pose considerable risk of sediment production.

**2<sup>nd</sup> Priority - Watershed restoration:** Areas and treatments to pursue second are those watersheds where restoration can be used as an effective tool to enhance conditions and restore fish populations over the intermediate term. These streams have had historic fish runs but due to impacted habitat may or may not now support viable fish populations. We can aim to restore conditions in these basins so that fish will once again inhabit them.

**3<sup>rd</sup> Priority - Water quality restoration:** Thirdly, inventory and perform restoration within small tributary watersheds or basins where access for anadromous fish is naturally limited. Watershed and riparian restoration can be performed in these basins to reduce sediment inputs to larger streams and to lower summer water temperatures even though these tributary streams have little or no actual habitat for anadromous fish.

The so called "*train-wreck*" basins, (ie., those with severely degraded watershed conditions) can fall within either the **2<sup>nd</sup> or 3<sup>rd</sup> priority** watersheds, depending on whether they historically had high fisheries values or primarily water quality values.

**4<sup>th</sup> Priority - Main stem restoration:** Only after the tributaries are showing the signs of lower sediment loads and decreased summer water temperatures will restoration actions in the main stem have much effect. Other than riparian restoration, there is probably not a great deal that can be done directly in the main channel to improve fish habitat at this time.

## 2. Focusing the location of first year restoration actions

It will be important to avoid the "shot-gun" approach to watershed restoration in the South Fork. The South Fork is a large watershed and it would be very easy to spend a lot of money without seeing any real improved habitat protection or restoration. As you are aware, it takes time and specialized personnel to perform adequate and necessary planning and inventory work before meaningful watershed restoration work can be implemented.

*We believe first efforts should be focused on completely protecting the highest priority, most productive subwatersheds of the South Fork.* Subwatersheds should be attacked and completed before work is expanded to other or adjacent areas. Try not to diffuse and diminish the benefits of restoration by working all over the place and not completing or finishing work in any watershed. We believe it is better to work hard and complete thorough protection and restoration work in one basin, before moving on to the next.

It is important that an additional form of prioritization also take place the first year for those projects that are 'on the shelf' and require less effort to implement in the short term.

## 3. First year protection and restoration tasks

We agree with the general "Project Priorities" established by the IIT Working Group 6. These include projects addressing 1) road erosion and sedimentation, 2) riparian restoration and 3) upland improvements (revegetation). Work in the highest priority watersheds should be aimed at protecting ("erosion-proofing") these watersheds from the potentially damaging effects of future storms and floods.

As you are aware, before plans are made to undertake projects to address potential road erosion and sedimentation problems, it will be very important to conduct transportation pre-planning. That is, you will need to decide which roads you are going to keep in the system, and which roads you are going to decommission, before you spend money and begin any road projects.

The IIT Working Group 6 spelled out three priority tasks for road-related "restoration." These included: 1) remedial tasks (such as upgrading stream crossings to the 100-year flood design), 2) road upgrading (including road surfacing) and 3) road decommissioning (removing stream crossings, decompacting etc.). *The long term "fate" of each road in these high priority watersheds should be decided before any of these restoration options are adopted*, so that money is not wasted by later having to "undo" the restoration work. That is, you have to be careful to not spend money upgrading culverts along a road you will later want to decommission, and vice-versa. These decisions require serious, long term planning.

Since road maintenance funds are always tight, downgrading system roads from Level II to Level I maintenance standards can save money and help erosion-proof watersheds. However, on downgraded roads, it is very important to develop self-maintaining long-term road drainage, excavate potentially unstable fillslopes, and evaluate all stream crossings for removal (culverts and fills) so that stream diversions and wash-outs do not occur during future storms.