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THE WHITE HOUSE
WASHINGTON

MEMORANDUM TO: Jim Lyons
George Frampton

FR: Will Stelle *WJS*

RE: PACFISH Announcement

DATE: 15 February 1994

This memorandum is to confirm our intention to announce the Administration's intent to put into place the PACFISH riparian strategy at the upcoming Watershed Management Conference tomorrow in Tacoma, WA. In doing so, we need to ensure that several things occur.

A. TIMING. Our announcement should not be exact or specific about when we will put PACFISH into place on an interim basis because of the need to further polish the environmental assessment before issuing it in proposed form. On the issue of timing, we should say nothing more than "in the coming days we will plan to issue for public comment" This will allow Justice, USDA and DOI to hone the EA as necessary.

B. COMMUNICATIONS. Before we make any public announcements, we should make sure that all the key constituencies who will have a stake in its implementation receive the proper advance notice of the announcement through phone calls by Jim or George. In particular, please ensure that the relevant governors and Members of Congress are alerted in advance so that none can claim surprise.

cc. Katie McGinty
Marcia Hale
Lorraine Miller
Barbara Chow
Tom Collier
Lois Schiffer
Jim Gilliland/Mike Gippert
John Leshy/Patty Beneke
Bob Armstrong
Tom Tuchmann



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Date:

Total number of pages:

7

TO: Will Stella

FAX: 202-456-2710

FROM: PHIL JANIK
(Forest Service)



MESSAGE:



Will,

Here is the



PACFISH "process" description

I promised to send. I have
updated it as of today.



I will send the
rest by Courier.

Phil



PACFISH Progress Report
24 January 1994

The Forest Service (FS) and Bureau of Land Management (BLM) are continuing with preparation of supporting documents for PACFISH without significant deviation from the implementation strategy and timeframes discussed with USDA Assistant Secretary Jim Lyons on December 17. Progress on specific elements of the implementation strategy is highlighted below.

PACFISH Environmental Assessment (EA): The PACFISH EA (addressing interim direction necessary until completion of the Environmental Impact Statements) has been drafted, and was sent to the PACFISH Field Team members for preliminary review and edit. We anticipate a mid-February Federal Register Announcement initiating a 45 day public review period of the EA. Since our December 17 meeting with the Department of Justice, BLM has moved considerably closer to the Forest Service position on the nature of interim direction (i.e., it is to be binding direction for field units). BLM has also decided to be a signatory to the PACFISH EA and Finding of No Significant Impact.

This EA for interim direction addresses the Idaho portion of the Snake River Basin, Eastside area and the portions of California having FS and BLM administered anadromous fish habitat beyond that covered by FEMAT.

Alaska is discussed in the EA, but interim direction will not be included in the application of interim direction. Studies in Alaska are being initiated on the Tongass National Forest in response to direction in the Appropriations Act for FY 94. Similar examination, before issuance of any interim direction, also will occur on the Chugach National Forest and BLM Districts in Alaska.

Appropriate interim direction would not be implemented until we have the benefit of reviewing the final FEMAT EIS and have analyzed public comment on the PACFISH EA. We anticipate these reviews will have occurred in time for implementation of interim direction by mid-April.

Eastside Notice of Intent (NOI): The Washington Offices of the FS and BLM have worked closely with the agencies' field units to reach agreement on specific language for the NOI to prepare an Environmental Impact Statement for the Eastside. We anticipate issuance of this NOI in early February - prior to release of the PACFISH Environmental Assessment and NOI's for Idaho and California. The Eastside NOI will not be issued until approved by FS Associate Chief Dave Unger for release.

Idaho and California NOI's: NOI's for the Idaho and California EIS's have been drafted and are being edited. These NOI's will be ready for publication at about the same time we publish the Decision Notice for interim direction after the public review period of the associated environmental assessment and review of the final FEMAT EIS (i.e. about mid-April).

Section 7 Consultations: The National Marine Fisheries Service (NMFS) met with Forest Service representatives in Portland on December 9 and agreed to the flexibility indicated in the draft PACFISH strategy, provided that adequate assessment and documentation occurred as part of Section 7 Consultations. This agreement represents improved understanding and coordination among the agencies, and should lead to increased efficiency in processing FS and BLM project proposals through Section 7 Consultations. This agreement is documented in the enclosed copy of a letter from Gary Smith, Acting Director for the Northwest Region of NMFS.

NMFS also agreed. at the December 9 meeting, to coordinate with the Fish and Wildlife Service to expedite consulting on the proposed PACFISH interim direction. This consultation would be jointly requested by the BLM and FS, and be jointly responded to by the NMFS and FWS. The consultation request and biological opinion would cover the entire geographic area of the proposal for implementation of interim direction as described in the EA. Consultation would occur during the same time period that the EA is being reviewed by the public.

Summary of PACFISH Strategy Elements

Enclosed for information are a summary of the PACFISH elements, and an information folder containing several documents that further elaborate on the substance and intent of the proposed PACFISH strategy. The folder includes a booklet of background information on why the strategy was developed, an executive summary, and detailed explanations for several of the key PACFISH strategy elements.

Elements Of The PACFISH Strategy A Summary

The PACFISH strategy consists of 8 inter-related elements. These 8 elements provide for a consistent approach to management of anadromous fish producing watersheds on Forest Service and Bureau of Land Management administered public lands. The strategy is adaptive in nature and provides for flexibility based on local information and conditions. The 8 elements of the strategy include:

Riparian Goals that call for the maintenance or restoration of:

- water quality;
- stream channel integrity, channel processes and sediment regimes;
- instream flows;
- timing and variability of water table elevation in meadows and wetlands;
- diversity and productivity of native and desired non-native plant communities to provide large woody debris, thermal regulation, and bank stability; and
- viability of riparian-dependant communities (i.e. native and desired non-native plants, vertebrates, and invertebrates).

Riparian Management Objectives (RMOs) that provide quantifiable definition of desirable habitat conditions. Interim landscape scale RMO's have been developed to guide land management decisions prior to completion of watershed analysis. Watershed-specific objectives, tailored to the geology, topography, climate, vegetation, and needs of specific salmonid assemblages, will be substituted for the interim objectives as watershed analyses are completed for individual drainages.

Standards and Guidelines (S&Gs) for implementation of management activities (e.g., timber harvest, livestock grazing, road construction, etc.) within Riparian Habitat Conservation Areas on National Forests and BLM administered public lands that support Pacific anadromous fish stocks. These S&Gs are intended to provide for continued multiple-use while focusing on attainment of RMOs.

Riparian Habitat Conservation Areas (RHCA's) are delineated to identify those portions of the landscape that most influence the delivery of high quality water, sediment, nutrients, and structural elements (e.g., large wood) to anadromous fish streams. RHCA's include the riparian corridor along permanent fish-bearing streams, and also include areas of unstable soils, wetlands, intermittent headwater streams, and other ecological significant areas. Although RHCA's are not "lock-out" buffers, as noted above, they receive special attention in the form of S&Gs to ensure RMOs are met.

Until Watershed Analyses are completed to provide for watershed specific location of RHCA boundaries, minimum interim widths are applied. These interim widths are:

- Fish bearing streams and lakes 300 ft (either side)
- Permanently flowing non-fish 150 ft (either side)
 bearing streams
- Ponds, reservoirs, and wetlands 150 ft (from the perimeter)
 less than 1 acre
- Seasonally flowing or intermit- 100 ft in Key Watersheds, or 50 ft in
 tent streams, wetlands < 1 acre, non-key watersheds
 landslides/landslide-prone areas

In non-forested rangeland ecosystems, the minimum interim width for permanently flowing streams is the extent of the 100 year flood plain.

Key Watersheds are identified to provide a network of drainages across the landscape to contribute to conservation of anadromous fish resources. This subset of watersheds was selected because they are important to "at risk" stocks, or currently are in "good" condition, or have a high potential for restoration. Key watersheds will receive top priority for watershed analysis and restoration activities. Interim RHCA widths in Key Watersheds differ from those in non-key watersheds as specified above.

Watershed Analyses will be conducted to identify "problem" areas that need immediate, corrective treatment, and will provide a more complete assessment of cumulative effects. Watershed analysis also will provide information to tailor RHCA boundaries and interim RMOs to better fit watershed specific conditions.

Watershed Restoration will be necessary to initiate recovery in some watersheds. All restoration work will be designed at a watershed/landscape scale and will involve coordination between changes in land management activities and active restoration projects. Information gathered through watershed analyses will be used to guide implementation of restoration activities.

Monitoring application and effectiveness of S&Gs will provide information essential to modification of S&Gs and attainment of RMOs.

Application of the PACFISH strategy will help limit the need for additional listing of anadromous salmonids, and where salmon stocks have already been listed will provide a basis for continued multiple-use management while stocks are recovered.

7600 Sand Point Way N.E.

BIN C15700 Bldg. 1

Seattle, WA 98115

DEC 22 1993

Dr. Phil Janik
U.S. Forest Service
Wildlife and Fisheries Programs
201 14th Street S.W.,
at Independence Ave S.W.
Washington DC 20250

Re PACFISH Interim Riparian Protection and Section 7
Consultation

Dear Dr. Janik:

Thank you for taking the time to met with us on December 9 to discuss the draft PACFISH Strategy as it relates to section 7 consultations in the Snake River Basin. The dialog was positive, allowing our staffs to clarify their understanding how the draft PACFISH strategy relates to consultations. In order for us to move forward with a common understanding, I would like to take this opportunity to summarize the two main points of agreement between National Marine Fisheries Service (NMFS) and the Forest Service reached during our meeting.

1. The interim Riparian Habitat Conservation Area (RHCA) widths specified in the draft PACFISH Strategy will apply throughout the Snake River Basin for the purposes of section 7 consultations. Any activities proposed within these RHCAs must either directly benefit or not degrade anadromous fish habitat. Adoption of the interim RHCA widths would be encouraged, however, deviations could be considered if watershed analyses in the biological assessments support such a change. Supporting analyses would consider the same physical and biological criteria used to establish the interim RHCA widths, and should use scientific information and professional judgement to document how RHCA objectives and NMFS' requirement for adequate improvement over the base period would be met. The Columbia River Basin Coordinator's Office would review all such analyses before they are forwarded to NMFS for consultation.
2. To expedite the consultation process, the Forest Service will work closely with NMFS and the Fish and Wildlife Service while preparing the biological assessment that will



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accompany the environmental assessment for interim implementation of the PACFISH strategy while environmental impact statements are being prepared. This approach will provide an early opportunity to resolve PACFISH implementation issues that have been identified by NMFS and others, e.g., adequacy of the RHCA objectives and roadless area management.

Thank you again for taking the time to meet with us. We welcome every opportunity to improve coordination and understanding between our agencies. If you have any questions please contact me or Jeff Lockwood of my staff at (503) 231-2339.

Sincerely,

Gary Smith
Acting Regional Director

cc: Gordon Haugen

FOURTH: PACE 1ST

PAUL JANK

1455TH N2.

1024 WATERFALLS

① FUMAT: NO LOW management

PAFISH: level one: some management and allow it to continue

② BOARDING: Anywhere in Dallas area.

FUMAT: full waterbed analysis (2 ft. expanse)

PAFISH: must be provided by genetic risk analysis

③ INTERIM OPERATIONAL MANAGEMENT OBJECTIVES

PAFISH: quantified objectives: deep pool objectives
(only ability of PAFISH) large wordy debris
Aldo } SCUBA
bank angles

FUMAT: NO interim operational management objectives

PAFISH: All quadrants fish habitat in west

(LTD. ORIGIN, IDAHO, (M.F.), except FUMAT AREA + ALASKA.

PUZZLES: 'DONT 21/2 for Enrich Low Basin } notes of intent
(perhaps after comment on the 91) SA
2000/2 (perhaps across from 91)

② variance of SA W) proposed

③ Curious would prefer to defer

cc Will Skille
Katie

Final Draft

PROPOSED NEWS RELEASE CONCERNING REGIONAL EFFORTS TO DEVELOP
NEW EASTSIDE MANAGEMENT STRATEGY

FOR RELEASE BY US DEPARTMENT OF AGRICULTURE

FOR RELEASE AUGUST 30, 1993

News Contacts
 Washington D.C.: Barbara Anderson (202) 205-1576
 Portland: Patty Burel (503) 326-5112
 Tim Rogan (503) 326-7739

**USDA FOREST SERVICE BEGINS DEVELOPING ECOSYSTEM
BASED MANAGEMENT STRATEGY FOR EASTERN OREGON AND
EASTERN WASHINGTON.**

The USDA Forest Service is beginning to develop a new management strategy for National Forests in Eastern Oregon and Eastern Washington. The strategy will be based on ecosystem management concepts.

"We are moving forward with Presidential direction to develop a scientifically sound ecosystem based strategy for forests on the eastside," said Jim Lyons, USDA Assistant Secretary for Natural Resources.

In his Forest Plan for a Sustainable Economy and a Sustainable Environment, the President directed the USDA Forest Service to:

- o focus on restoring the health of forest ecosystems
- o develop a scientifically sound and ecosystem based strategy for management of eastside forests
- o base the strategy on the forest health study recently completed by agency scientists (the Eastside Forest Health Assessment)
- o accelerate efforts to prepare timber sales to harvest dead and dying timber on the eastside.

"In recent months, several new studies and information have become available that point to a need to consider change on the eastside," said Lyons. "The USDA Forest Service intends to work together with the public and other agencies to design and implement a process for carrying out the President's direction.

"Soon we will establish an interagency team and strategy to

OPTIONAL FORM 99 (7-90)		FAX TRANSMITTAL		# of pages	
To	Maola	From	Jim Lyons	Phone	720-7173
Dept/Agency				Fax	
Fax #	456-2685				
GENERAL SERVICES ADMINISTRATION					
NSN 7540-01-317-7968 5099-101					

accomplish this important task," said Lyons.

At the same time, Regional Forester John Lowe announced the establishment of a screening process for timber sales on the eastside. "Several recent studies have given us information we needed to move forward with an ecosystem approach on the eastside," said Lowe. "These studies are causing us to re-evaluate current management direction. Consequently, we have established a screening process for timber sales with old growth, old growth associated wildlife, and riparian habitat vital for fisheries. These screens will help us be sure we are not violating our viability standards in the National Forest Management Act."

These new information sources are:

- o Forest Ecosystem Health Assessment (Everett Report) commissioned by Congressman Foley and Senator Hatfield - completed in June 1993

- o President Clinton directed scientifically sound ecosystem based management for eastside.

- o Forest Service & Bureau of Land Management studies on habitat needs for viable fish populations, particularly anadromous fish (Salmon) - now being finalized.

- o Forest Service forest plan monitoring reports indicating that due to tree mortality and new more site-specific inventories, the amount and configuration of existing old growth is less than what was anticipated.

- o Consultation with National Marine Fisheries Service with respect to threatened and endangered fish has indicated a need for revised management direction to maintain fish viability and protect other species.

"In the short term, we have developed this screening process in order to keep from violating our viability standards which will hopefully prevent an injunction similar to what has immobilized timber sales on the westside."

In the longer term, the Forest Service and its Pacific Northwest Research Station will be working other agencies, and involving the public in an open process to begin the implementation of an ecosystem based strategy for the east side forests. Forest Service managers and field people will be using this new information and research to improve the way we manage the public forest resources. This effort is a direct response to the President's direction.

Lowe said that a special team will be formed to begin the implementation of this strategy. Part of the team's task will be the production of a draft environmental impact statement by the spring of 1994. Lowe anticipates the team will be headquartered in either Spokane or Walla Walla, Washington to facilitate involvement of people on the eastside.

People interested in becoming involved in the development of this new strategy are encouraged to notify Regional Forester John Lowe (P.O. Box 3623, Portland, OR 97208), PNW Research Station Director Charles Philpot, and/or the appropriate Eastside National Forest Supervisor.

12:00 Sat.

4 beds
3 single, 1 queen (+ 2 frames ^{disassembled metal})

1 desk

3 sofas

2 chairs upholstered

6 wooden chairs

2 wooden benches

25 moving boxes

1 small bookcase

2 dressers

3 ~~large~~ wooden tables

1 bedside stand

1 ~~sewing~~ sewing cabinet

[3 framed pictures]

1 push lawn mower + garden tools

1 canoe

1 sailboat

PACFISH Strategy:
Elements of the Strategy

D R A F T

Goals

Riparian Management Objectives

Standards and Guidelines

Riparian Habitat Conservation Areas (RHCA's)

Key Watersheds

Watershed Analysis

Watershed Restoration



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**PACFISH Strategy:
Goals/Riparian Management Objectives**

D R A F T

BACKGROUND

The purpose of the PACFISH strategy is to provide habitat conditions that contribute to the conservation and restoration of naturally reproducing stocks of Pacific salmon and anadromous trout on Forest Service (FS) and Bureau of Land Management (BLM) lands in California, Oregon, Idaho, Washington, and Alaska. It's focus is on maintaining and restoring ecological functions and processes that operate in a watershed to create good fish habitat.

Productive Salmonid Habitats

In general terms, productive natural habitats in 3rd to 5th order watersheds supporting mixed species communities of anadromous salmonids are characterized by:

- **excellent water quality** (i.e., year round supply of cool, well-oxygenated water, and free from pollutants. Suspended sediment does not exceed background levels in undisturbed watersheds and remains in phase with freshets and flood events.)
- **sufficient water quantity** (i.e., amplitude and timing of annual flow events provides water to meet spawning, rearing and migration requirements.)
- **complex channel characteristics** (i.e., the most productive stream reaches for mixed salmonid communities have low gradients (<5%) with a combination of constrained and unconstrained segments containing a broad diversity and complexity of habitat features. Streams maintain a balance between high quality pools, riffles, glides, and side channels, with a pool frequency of about one pool per four to seven channel widths. Cover features such as large woody debris, boulders, undercut banks, overhanging vegetation, deep water, and surface turbulence are abundant in all habitats. Substrates consist of a variety of particle sizes ranging from silts to boulders to accommodate the spawning and rearing needs of all the species within the community. Spawning gravels contain low percentages of fine sediments. Channels are free of obstructions that interfere with the upstream or downstream migration of adult or juvenile salmonids.)

-- **healthy riparian communities** (i.e. forested watersheds contain large conifers or a mixture of large conifers and hardwoods in riparian zones and near-stream upland areas. Stream banks are vegetated with shrubs and other low-growing woody vegetation. Non-forested watersheds or portions of watersheds (generally rangeland systems) have an abundance of shrubs in the riparian zones and along streambanks and/or luxuriant growth of deep rooted grasses, sedges, and forbs. Root systems of plant communities adjacent to streambanks of the active channel allow development and maintenance of stable undercut banks.)

-- **stable watersheds** (i.e. upland portions of watersheds are well-vegetated, fairly stable, and free from chronic and accelerated sedimentation. Watersheds are free from disturbances that alter natural stream flow regimens and the quality of water emanating from uplands. Unstable headwall areas are vegetated with large conifers, or a combination of conifers and hardwoods.

This description of good habitat for anadromous salmonids applies to watersheds as a whole. All of the described features may not occur in a specific segment of stream within a watershed, but all should occur in abundance in the watershed in total.

Components of Alternatives to Provide Good Habitat

The PACFISH strategy presents eight alternatives for providing the productive habitat conditions described above. The Forest Conference Team produced an alternative modified from one of the PACFISH alternatives. Each alternative affords different probabilities of success and operates on a different time trajectory. The more conservative alternatives offer the highest levels of protection for remaining good habitats and the shortest time frame for restoration of degraded habitats. Four components underlie the alternatives. Each component addresses a critical aspect for maintaining and restoring fish habitat and ecological functions in streams. They include:

-- **delineating key-watersheds** (i.e. a landscape-scale system of watershed protection across lands managed by the FS and BLM.)

-- **establishing Riparian Habitat Conservation Areas** (i.e. areas within all watersheds that are the primary contributors/regulators of water quality, sediment, and organic material where land-use activities are restricted to those that either directly benefit or do not adversely affect fish habitat.)

-- **implementing watershed analyses** (i.e. an explicit level of evaluation designed to determine geomorphic and ecologic processes operating in specific watersheds, identify boundaries of Riparian Habitat Conservation Areas, provide information to refine Riparian Management Objectives and other habitat

objectives to better reflect the inherent ecological capabilities of specific watersheds, and provide a blueprint for restoration measures.)

- **initiating comprehensive watershed restoration measures** (i.e. capital investment to accelerate restoration of watershed function and health, with priority given to those watersheds that have the greatest potential to provide high quality fish habitat and contribute to conservation of "at risk" salmonid stocks.)

The PACFISH alternatives define how the four components are used and the portion of the landscape they apply to.

Management Direction

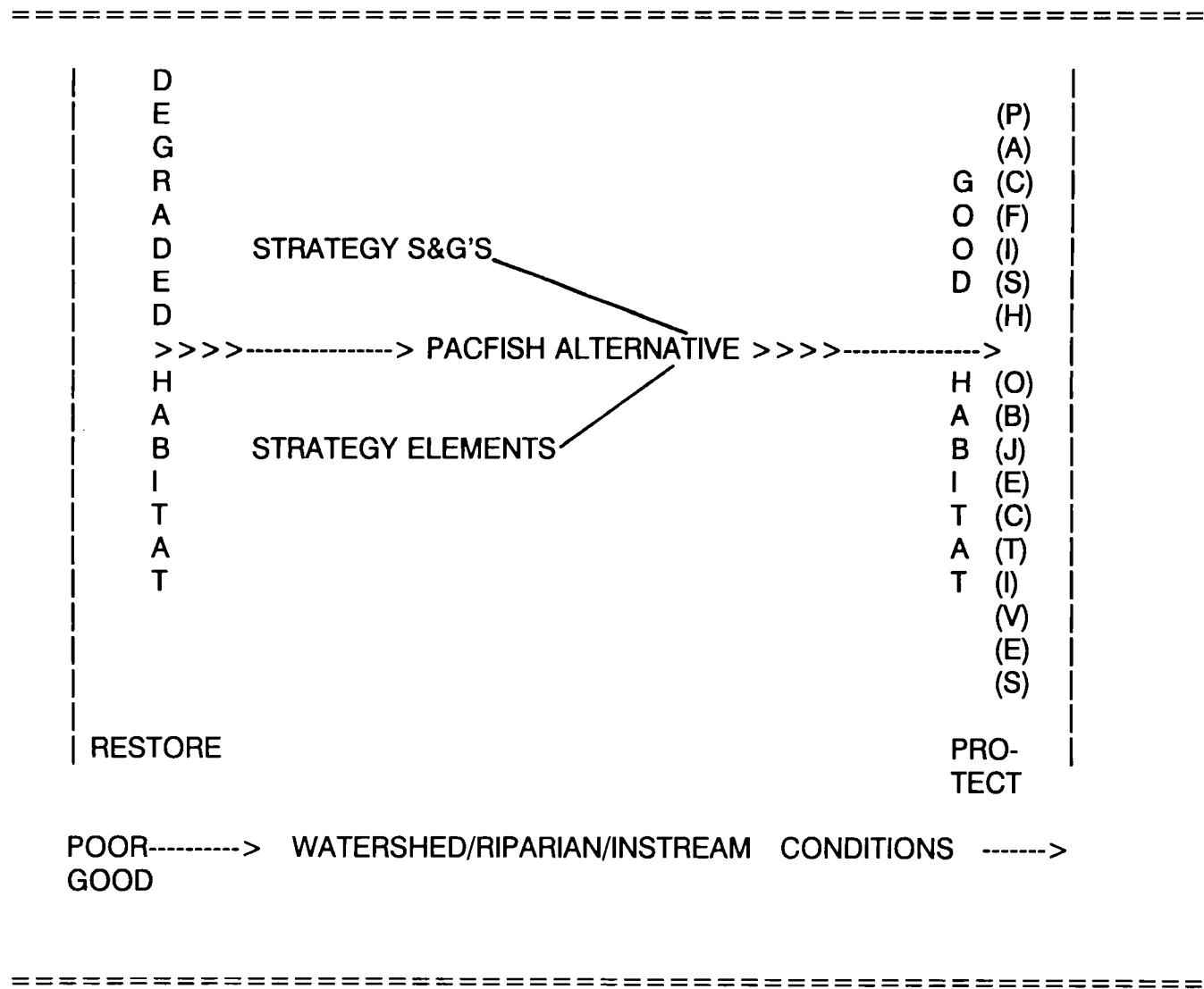
To provide an appropriate level of consistency and assurance that management of watersheds on FS and BLM lands provides habitat conditions that contribute to recovery and sustained natural production of anadromous salmonids, the PACFISH strategy includes management direction in the form of goals, objectives, and standards and guidelines. The role of each is briefly summarized below:

- **goals** establish a common expectation of the characteristics of healthy, functioning watersheds, riparian areas, and associated fish habitats.
- **objectives** for stream channel, riparian, and watershed conditions that are measurable, together provide a quantitative description of good salmonid habitat, and serve as indicators against which attainment, or progress toward attainment, of the goals will be measured.
- **standards and guidelines** (S&G's) for implementation of management activities to provide assurance that objectives for stream channel, riparian, and watershed conditions are met. S&G's are designed to steadily move stream habitat toward the defined conditions indicative of good habitat; or, if current habitat is in good condition, that conditions remain favorable in managed landscapes. The extent of the landscape to which S&G's are applied varies by alternative.

There are direct linkages between the management direction described above, and the components of the alternatives (Figure 1). The goals and objectives define the habitat conditions needed to contribute to conservation and restoration of naturally reproducing salmonid stocks. The standards and guidelines describe limitations on management activities to meet those conditions. Delineation of Key Watersheds and RHCA's in the various alternatives help to define where and how quickly management direction is applied. Information gathered through watershed analysis is used to

refine objectives and adjust standards and guides to better match the ecological capabilities of specific watersheds, or more effectively accomplish strategy goals.

Figure 1. Linkages between PACFISH goals, objectives, standards and guidelines, and alternatives of the strategy. Habitat in good condition will be protected and degraded habitats will be restored through application of the strategy.



GOALS FOR WATERSHED, RIPARIAN AREA, AND STREAM CHANNEL CONDITIONS

Protection and restoration of habitat quantity, quality, diversity, and complexity is critical to conservation and restoration of many stocks of western anadromous salmonids that inhabit lands managed by the FS and BLM. Since the quality of water and fish habitat in aquatic systems is inseparably related to the integrity of upland and riparian areas within their watersheds, the Strategy articulates several goals for watershed, riparian, and stream channel conditions. As noted elsewhere, collectively these goals establish a common expectation of the characteristics of healthy, functioning watersheds, riparian areas, and associated fish habitats.

The goals are to maintain or restore:

- **water quality** to a degree that provides for stable and productive riparian and aquatic ecosystems.
- **stream channel integrity, channel processes, and the sediment regime** under which the riparian and aquatic ecosystems developed. (Important elements of the sediment regime include the timing, volume, and character of sediment input and transport.)
- **instream flows** to support healthy riparian and aquatic habitats, the stability and effective function of stream channels, and the ability to route flood discharges.
- **natural timing and variability of the water table elevation** in meadows and wetlands.
- **diversity and productivity** of native and desired non-native plant communities in riparian zones.
- **riparian vegetation** to:
 1. provide an amount and distribution of large woody debris characteristic of natural aquatic and riparian ecosystems.
 2. provide adequate summer and winter thermal regulation within the riparian and aquatic zones.
 3. help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed.

-- **riparian and aquatic habitats necessary to foster the unique genetic fish stocks** that evolved within that specific geo-climatic region.

-- **habitat to support populations** of well-distributed native and desired non-native plant, vertebrate, and invertebrate populations that contribute to the viability of riparian-dependent communities.

The forgoing goals apply broadly to FS and BLM landscapes in California, Oregon, Washington, Idaho, and Alaska.

OBJECTIVES

Measurable objectives for stream channel, riparian, and watershed conditions provide the "criteria" against which attainment, or progress toward attainment, of the goals will be measured. They provide the target that managers of federal lands will be aiming for as they conduct resource management activities across the landscape. Without the benchmark provided by measurable objectives, our perception of good habitat suffers a continual erosion. Additionally, the objectives should be time-specific and established on a drainage or other biologically significant production basis, to reflect the ecological capabilities of specific systems.

Factors Complicating Establishment of Objectives

Quantitative definition of stream channel, riparian, and watershed conditions (i.e. "good habitat") that are indicative of having met Strategy goals is complicated by several factors, including:

-- **anadromous salmonids inhabit diverse ecological settings.** Watershed topography, geology, vegetation, and climatic features interact to produce the floodplain and channel features that shape salmonid habitats. The variation in these features, and associated habitats, over the range of Pacific anadromous salmonids makes quantitative description of good habitat a monumental task.

-- **natural variability of conditions within given ecological settings.** Even within given ecological settings there may be significant natural variability in some habitat features.

-- **anadromous species have evolved into numerous locally adapted stocks.** Each species has a variable number of discrete stocks that are genetically isolated from each other and specifically adapted to local habitat characteristics. Hundreds of such stocks utilize streams and lakes for reproduction and freshwater rearing in the forests and rangelands of California, Oregon, Washington, Idaho, and Alaska. Each stock has exacting but slightly different

habitat requirements, necessitating diverse and complex habitats to maintain viable populations of all groups.

-- **life history characteristics of anadromous salmonids are complex.**

The life history of anadromous salmonids adds to the complexity of freshwater habitat needs. All anadromous salmonids spawn in freshwater and juvenile fish rear in streams and lakes for variable periods of time before moving to sea where they grow to adulthood. Juveniles of some species reside in freshwater for only a few weeks, but more commonly, juveniles reside in freshwater for one to several years, growing in size to 6-8 inches or more before entering the sea. Freshwater habitats often must accommodate several age classes of young anadromous fish ranging in size from one to eight inches through spring, summer, fall, and winter seasons. Habitat needs are different for each age class and season of the year. Therefore, freshwater habitats must provide good water quality and quantity and a wide variety of substrates, riffles, pools, glides, and side-channels, cover, and food resources to accommodate the habitat needs of all the age classes.

-- **anadromous salmonids occur as communities and co-exist with other aquatic species.**

Assemblages of western anadromous salmonids associated with public lands include five species of Pacific salmon, two trouts, and one char. It is quite common for several species, numerous stocks and a variety of age classes to exist in concert in the same sections of stream systems throughout their range. As a result, the anadromous salmonid community of most aquatic systems is a complex mixture of several species, stocks, and age classes. The complexity of anadromous salmonid communities varies geographically throughout their range. At the extreme southern and northern ends of the range and in the upper reaches of the largest river systems (e.g., Columbia River) anadromous communities tend to be less complex than in the central portion of the range. The simpler communities might consist of one to three species and several stocks, while the more complex communities can consist of eight species and numerous stocks.

The complex habitat needs of anadromous salmonids can not be discussed in isolation. Most of the aquatic systems used by anadromous salmonids also are used by a variety of resident trout, char, and other aquatic species. Where anadromous communities are less complex, often resident fish communities tend to be more complex. These species also have exacting habitat needs that differ from anadromous species but must be met by the same habitats. The combination of anadromous and resident fish assemblages living in concert in freshwater systems adds to the need for habitat complexity and diversity throughout the west.

-- **available data for quantifying habitat features are limited.** The freshwater habitat requirements of anadromous salmonids have been well-documented in the scientific literature. In general, however, descriptions of habitat requirements are species-specific and do not take into account the fact that almost all aquatic habitats used by anadromous fish must accommodate complex communities of species and stocks rather than a single species or stock.

Identification of Interim Riparian Management Objectives

Given the need for measurable objectives and the limitations noted above, the PACFISH strategy includes a set of interim Riparian Management Objectives to guide land management decisions. More specific objectives will be developed as watershed analyses are conducted for individual drainages. The specific objectives will be tailored to the geology, topography, climate, vegetation, and needs of specific salmonid assemblages in the watersheds, and an assessment of what habitat conditions are attainable in a given watershed.

Use of Undisturbed Habitats to Establish Interim Riparian Management Objectives. Inventory information from habitats largely undisturbed by human activities, and that successfully accommodate a complex community of species and stocks was used to develop interim Riparian Management Objectives. Systems that have suffered recent catastrophic disturbance (i.e. fire, flood, volcanoes, landslides, earthquakes, etc.) and are in unfavorable productive states were screened out of the data base, because natural disturbances of this type are unpredictable, occur irregularly across the landscape, and have recurrence intervals of centuries to millennia.

Data Available to Establish Interim Riparian Management Objectives. Although stream inventories have been conducted by state and federal agencies in California, Oregon, Washington, and Idaho since the 1930's, and more recently in Alaska, few are quantitative enough to be replicated or used comparable protocols. An exception is an extensive survey of salmon habitats of the Columbia Basin conducted by the Bureau of Fisheries between 1938 and 1941. That survey quantified habitat in 6,000 miles of Columbia Basin streams and provided data on pool frequency and substrate characteristics that can be used to establish measurable objectives for good habitat. Watershed-scale stream inventories conducted by the Forest Service since 1988 in Oregon, Washington, and Alaska also provide a substantial data base (more than 2000 miles surveyed) for establishing measurable objectives for features of good salmonid habitat.

Selection of Habitat Features for Interim Riparian Management Objectives. Interim objectives address selected features of salmonid habitats that are:

-- **good indicators of ecosystem health.** Aquatic systems are ecologically complex and inseparably linked to riparian and upland terrestrial systems. As described elsewhere, the complexity of habitat features and their interactive nature makes identification of measurable objectives a difficult task. However, some habitat features can be used as surrogates for the processes that lead to habitat formation, and in combination with other features can be used as indices to the health of watershed systems and salmonid habitat quality. For example, an abundance of pools in a stream may indicate: a balance between sediment input to a system and sediment processing, the presence of roughness elements in the channel (e.g. large woody debris, boulders, or root-reinforced streambanks), and/or normal variations in streamflow. Large wood in a stream may indicate the presence of healthy riparian and near-stream upland vegetative communities, while providing cover complexity in the active channel and habitat for healthy invertebrate populations that serve as salmonid food sources.

-- **easily quantified and subject to accurate repeatable measurements.**

Habitat Features Selected for Interim Direction. The Strategy proposed Riparian Management Objectives that are defined by a key feature and several supporting features that meet the two criteria described above. The key feature (kf) and supporting features (sf) are:

- **pool frequency (kf)**
(all systems)
- **water temperature (sf)**
(all systems)
- **large woody debris frequency (sf)**
(forested systems)
- **streambank stability and lower bank angle (sf)**
(non-forested systems)
- **width to depth ratio (sf)**
(all systems)

Interim Riparian Management Objectives for Selected Features. Stream inventory data referenced above were used to establish interim objectives for pool frequency, large woody debris, bank stability and lower bank angle, and width to depth ratio. State water quality standards were used to define favorable water temperatures. The table below summarizes the landscape-scale interim Riparian Management Objectives for these selected habitat features.

HABITAT OBJECTIVE	FEATURE	INTERIM
Pool Frequency (all systems)	Varies by channel width, see below:	
wetted width in feet:	10	20 25 50 75 100 125 150 200
number pools per mile:	96	56 47 26 23 18 14 12 9
Water Temperature (all systems)	Compliance with state water quality standards, or maximum <68F.	
Large Woody Debris (forested systems)	Coastal California, Oregon, Washington, and Alaska. >80 pieces per mile; >24 inch diameter; >50 foot length. East of Cascade Crest in Oregon, Washington, Idaho. >20 pieces per mile; >12 inch diameter; >35 foot length.	
Bank Stability (non-forested systems)	>80 percent stable.	
Lower Bank Angle (non-forested systems)	>75 percent of banks with <90 degree angle (i.e. undercut).	
Width/Depth Ratio (all systems)	<10	

Limitations of Interim Riparian Management Objectives. In development of interim Riparian Management Objectives an effort was made to stratify stream inventory data by stream size, constrained and unconstrained floodplains, geographic area, hydrologic province, and geologic province. The data base available, however, was inadequate for this level of stratification. Instead, all of the data (from more than 100 watershed-level surveys) were combined to develop landscape-scale interim habitat objectives that can be applied broadly to guide management activities on public lands over the entire range of anadromous salmonids from California to Southcentral Alaska.

A watershed analysis will be required to determine habitat objectives that are desirable and attainable within specific streams or reaches of streams. Until such specific watershed analyses are completed, these interim Riparian Management Objectives will be used to estimate the differences between existing and good habitat conditions and trends relative to attainment of PACFISH goals.

Application of Interim Riparian Management Objectives. Interim objectives apply at the watershed scale for stream systems of moderate size (3rd to 5th order). Each of the interim objectives must be met or exceeded before general habitat conditions would be considered good for anadromous salmonids. However, application of the interim objectives requires thoughtful analysis and common sense. That is, if the objective for pool frequency is met or exceeded, there may be some latitude in assessing the importance of meeting the objectives for the supporting features that contribute to channel roughness and complexity. For example, in headwater steelhead streams with an abundance of pools, fewer pieces of large wood in the presence of an abundance of large boulders might still constitute good habitat. The goal is to achieve a high level of habitat diversity and complexity, and that can be achieved through a combination of roughness elements. Watershed analysis will play an important role in establishing site-specific clarification of these interactions. Differences in ownership patterns (i.e. blocked, checkerboard, scattered) also will require that common sense guide the application of interim Riparian Management Objectives.

Habitat conditions that do not meet the interim Riparian Management Objectives may be predicted as part of the "analysis of alternatives process" or measured during/ following implementation of land management activities. Predicted habitat conditions that do not meet interim objectives will require additional watershed/fisheries analysis. This analysis will:

- identify principle features contributing to predicted habitat conditions that will not meet the interim Riparian Management Objectives.

- determine if the proposed activities should be redesigned, modified, moved, or dropped.
- identify required mitigation measures to bring the activity in line with interim Riparian Management Objectives.
- evaluate the "fit" of interim Riparian Management Objectives relative to the ecological capabilities of the specific watershed and the habitat requirements of the species complex occurring in that watershed.
- be completed and documented as part of the environmental analysis process.

Measured habitat conditions that do not meet interim Riparian Management Objectives would trigger additional analysis to:

- identify principle factors responsible for measured habitat conditions that do not meet interim Riparian Management Objectives.
- evaluate the "fit" of interim Riparian Management Objectives relative to the ecological capabilities of the specific watershed and the habitat requirements of the species complex occurring in that watershed.

Based on this analysis, the agency would take one or more of the following actions as appropriate:

- modify/refine/discontinue the management activities resulting in habitat conditions that do not meet interim Riparian Management Objectives.
- review/revise the schedule of activities, standards and guides, etc.
- initiate new activities (e.g. rehabilitation) to meet interim Riparian Management Objectives.
- revise the Riparian Management Objectives to more accurately reflect the ecological capabilities of the specific watershed.

Document the results of the analysis, the actions to be taken, and the time-frame within which those actions will occur.

Revision of Interim Riparian Management Objectives. Given the lack of information to establish watershed specific measurable objectives, an on-going process for refinement of the objectives will be necessary. The process for revision will include four components:

- revision must be driven by sound, locally applicable quantitative field data and applicable research.
- the data must clearly indicate that the ecological capability of the system is significantly different from those described by the interim Riparian Management Objectives.
- the proposed revision is supported by discussion/analysis demonstrating that the new objective better indicates achievement of PACFISH strategy goals.
- the revision will be documented and reviewed by a designated team of watershed/fisheries managers and research scientists.

Within the Columbia River Basin, drainage specific "desired future condition (DFC) numeric values" have been developed. These DFC values are consistent with the PACFISH strategy definition of "objectives." In lieu of the more broadly defined PACFISH interim Riparian Management Objectives, DFC values will be used to guide land management in the drainages for which they were developed.

PACFISH Strategy: Standards & Guidelines

D R A F T

BACKGROUND

The purpose of the PACFISH strategy is to provide habitat conditions that contribute to the conservation and restoration of naturally reproducing stocks of Pacific salmon and anadromous trout on Forest Service (FS) and Bureau of Land Management (BLM) lands in California, Oregon, Idaho, Washington, and Alaska. It's focus is on maintaining and restoring ecological functions and processes that operate in a watershed to create good fish habitat.

Management Direction

To provide an appropriate level of consistency and assurance that management of watersheds on FS and BLM lands provides habitat conditions that contribute to recovery and sustained natural production of anadromous salmonids, the PACFISH strategy includes management direction in the form of goals, objectives, and standards and guidelines. The role of each is briefly summarized below:

- **goals** establish a common expectation of the characteristics of healthy, functioning watersheds, riparian areas, and associated fish habitats.
- **objectives** for stream channel, riparian, and watershed conditions that are measurable, together provide a quantitative description of good salmonid habitat, and serve as indicators against which attainment, or progress toward attainment, of the goals will be measured.
- **standards and guidelines** (S&G's) for implementation of management activities to provide assurance that objectives for stream channel, riparian, and watershed conditions are met. S&G's are designed to steadily move stream habitat toward the defined conditions indicative of good habitat; or, if current habitat is in good condition, that conditions remain favorable in managed landscapes. The extent of the landscape to which S&G's are applied varies by alternative.

STANDARDS AND GUIDELINES

The following S&G package was developed by the PACFISH Washington Office Work Group and Field Team.

Timber Management

- TM-1. Prohibit timber harvest, including fuelwood cutting, in Riparian Habitat Conservation Areas, except as described below. Riparian Habitat Conservation Areas shall not be included in the land base used to determine the Allowable Sale Quantity, but any volume harvested can contribute to the timber sale program.
- a. Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting if there are no impacts that are inconsistent with attainment of Riparian Management Objectives.
 - b. Remove salvage trees only when present and future woody debris needs are met and other Riparian Management Objectives are not adversely affected.
 - c. Apply silvicultural practices for Riparian Habitat Conservation Areas to control stocking, reestablish and culture stands, and acquire desired vegetation characteristics in a manner that assures Riparian Management Objectives are met.

Roads Management

- RF-1. Cooperate with federal, Tribal, state, and county agencies, and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to attain Riparian Management Objectives.
- RF-2. For each existing or planned road, meet the Riparian Management Objectives by:
- a. minimizing road and landing locations in Riparian Habitat Conservation Areas.
 - b. completing Watershed Analyses prior to construction of new roads or landings in Riparian Habitat Conservation Areas.
 - c. establishing and developing Road Management Objectives for each road, including preparation of:
 - 1. road design criteria, elements, and standards that govern construction and reconstruction.

2. operation and maintenance criteria that govern road operation, maintenance, and management.

d. minimizing sediment delivery to streams from the road surface.

1. outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe.

2. route road drainage away from potentially unstable channels, fills, and hillslopes.

e. minimizing disruption of natural hydrologic flow paths.

f. restricting sidecasting.

RF-3. Determine the influence of each road on the Riparian Management Objectives. Meet Riparian Management Objectives by:

a. reconstructing road and drainage features that pose a substantial risk.

b. prioritizing reconstruction based on the current and potential impact to riparian resources and the ecological value of the riparian resources affected.

c. closing and stabilizing, or obliterating and stabilizing roads not needed for future management activities.

RF-4. New culverts, bridges and other stream crossings in locations of substantial risk, and existing culverts, bridges and other stream crossings determined to pose a substantial risk to riparian conditions will be improved to accommodate a 100-year flood, including associated bedload and debris. Priority for upgrading will be based on the potential impact and the ecological value of the riparian resources affected. Crossings will be constructed and maintained to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

RF-5. Provide and maintain fish passage at all road crossings of existing and potential fish-bearing streams.

RF-6. Develop and implement a Road Management Plan or a Transportation Management Plan that will meet the Riparian Management Objectives. This plan shall address items such as the following:

- a. Road Management Objectives for each road.
- b. road operation and maintenance.
- c. post-storm inspections and maintenance.
- d. during-storm inspections and maintenance.
- e. regulation of traffic during wet periods.

Grazing Management

- GM-1. Adjust grazing practices (e.g. length of grazing season, stocking levels, timing of grazing, etc.) to eliminate impacts that are inconsistent with attainment of Riparian Management Objectives. If adjusting practices is not effective, eliminate grazing.
- GM-2. Locate new livestock handling and/or management facilities outside Riparian Habitat Conservation Areas. For existing livestock handling facilities inside the Riparian Habitat Conservation Areas, assure that Riparian Management Objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities.
- GM-3. Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that will assure Riparian Management Objectives are met.
- GM-4. Adjust wild horse and burro management to eliminate impacts that are inconsistent with attainment of Riparian Management Objectives.

Recreation Management

- RM-1. Design, construct, and operate recreation facilities, including trails and dispersed sites, within Riparian Habitat Conservation Areas in a manner that contributes to attainment of the Riparian Management Objectives. For existing recreation facilities inside Riparian Habitat Conservation Areas, assure that Riparian Management Objectives are met. Where

Riparian Management Objectives cannot be met, require relocation or closure of recreation facilities.

- RM-2. Adjust dispersed and developed recreation practices that are inconsistent with attainment of Riparian Management Objectives. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective, eliminate the practice or occupancy.
- RM-3. Wild and Scenic Rivers, Wilderness, and other Recreation Management plans will address attainment of Riparian Management Objectives.

Minerals Management

- MM-1. If the Notice of Intent indicates a mineral operation could affect attainment of Riparian Management Objectives, require a reclamation plan, approved Plan of Operations (or other such governing document), and reclamation bond. Impacts that cannot be avoided will be reclaimed after operations to as near the pre-mining condition as practicable to meet Riparian Management Objective. Reclamation Plans will contain measurable attainment and bond release criteria for each reclamation activity.
- MM-2. Locate structures, support facilities, and roads outside Riparian Habitat Conservation Areas. Where no alternative to siting facilities in Riparian Habitat Conservation Areas exists, locate in a way compatible with Riparian Management Objectives. Road construction will be kept to the minimum necessary for the approved mineral activity. When a road is no longer required for mineral or land management activities, it will be closed, obliterated, and stabilized.
- MM-3. Prohibit solid and sanitary waste facilities in Riparian Habitat Conservation Areas. If no practicable alternative to locating mine waste (waste rock, spent ore, tailings) facilities in Riparian Habitat Conservation Areas exists, and releases can be prevented and stability can be ensured, then:
- a. analyze the waste material using the best conventional sampling methods and analytic techniques to determine its chemical and physical stability characteristics.
 - b. locate and design the waste facilities using best conventional techniques to ensure mass stability and prevent the release of acid or toxic

materials. If the best conventional technology is not sufficient to prevent such releases and ensure stability over the long term, prohibit such facilities in Riparian Habitat Conservation Areas.

c. monitor waste and waste facilities to confirm predictions of chemical and physical stability, and make adjustments to operations as needed.

d. reclaim waste facilities after operations to assure chemical and physical stability and to meet the Riparian Management Objectives.

e. require reclamation bonds adequate to ensure long-term chemical and physical stability of mine waste facilities.

MM-4. For leasable minerals, prohibit surface occupancy within Riparian Habitat Conservation Areas for oil, gas, and geothermal exploration and development activities where contracts and leases do not already exist, unless there are no other options for location and Riparian Management Objectives can be met. Adjust the operating plans of existing contracts to eliminate impacts that are inconsistent with attainment of Riparian Management Objectives.

MM-5. Sand and gravel mining and extraction within Riparian Habitat Conservation Areas will occur only if Riparian Management Objectives can be met.

MM-6. Develop inspection and monitoring requirements for mineral activities. Evaluate the results of inspection and monitoring to modify mineral plans, leases or permits as needed to eliminate impacts that are inconsistent with attainment of Riparian Management Objectives.

Fire/Fuels Management

FM-1. Design fuel treatment and fire suppression strategies, practices, and activities to meet Riparian Management Objectives, and to minimize disturbance of riparian ground cover and vegetation. Strategies should recognize the role of fire in ecosystem function and identify those instances where fire suppression or fuel management activities could perpetuate or be damaging to long-term ecosystem function.

FM-2. Locate incident bases, camps, helibases, staging areas, helispots and other centers for incident activities outside of Riparian Habitat Conservation Areas. If the only suitable location for such activities is within the Riparian Habitat Conservation Area, an exemption may be granted

following a review and recommendation by a resource advisor. The advisor will prescribe the location, use conditions, and rehabilitation requirements. Utilize an interdisciplinary team to predetermine suitable incident base and helibase locations during presuppression planning.

- FM-3. Minimize delivery of chemical retardant, foam, or additives to surface waters. An exception may be warranted in situations where over-riding immediate safety imperatives exist, or, following a review and recommendation by a resource advisor, when an escape would cause more long-term damage.
- FM-4. Design prescribed burn projects and prescriptions to contribute to the attainment of the Riparian Management Objectives.
- FM-5. Immediately establish an emergency team to develop a rehabilitation treatment plan needed to attain Riparian Management Objectives whenever Riparian Habitat Conservation Areas are significantly damaged by a wildfire or a prescribed fire burning out of prescription.

Lands

- LH-1. For hydroelectric and other surface water development proposals, require instream flows and habitat conditions that maintain or restore riparian resources, favorable channel conditions, and fish passage. Coordinate this process with the appropriate state agencies. During relicensing of hydroelectric projects, provide written and timely license conditions to Federal Energy Regulatory Commission (FERC) that require flows and habitat conditions that maintain/restore riparian resources and channel integrity. Coordinate relicensing projects with the appropriate state agencies.
- LH-2. Locate new hydroelectric ancillary facilities outside Riparian Habitat Conservation Areas. For existing ancillary facilities inside the RHCA that are essential to proper management, provide recommendations to FERC that assure the Riparian Management Objectives are met. Where these objectives cannot be met, provide recommendations to FERC that such ancillary facilities should be relocated. Hydroelectric facilities that must be located in the Riparian Habitat Conservation Area, will be located, operated, and maintained to eliminate adverse effects that are inconsistent with attainment of the Riparian Management Objectives.
- LH-3. Issue leases, permits, rights-of-way, and easements to avoid adverse effects that are inconsistent with attainment of the Riparian Manage-

ment Objectives. Where the authority to do so was retained, adjust existing leases, permits, rights-of-way, and easements to eliminate adverse effects that are inconsistent with attainment of the Riparian Management Objectives. If adjustments are not effective, eliminate the activity. Where the authority to adjust was not retained, negotiate to make changes in existing leases, permits, rights-of-way, and easements to eliminate adverse effects that are inconsistent with attainment of the Riparian Management Objectives. Priority for modifying existing leases, permits, rights-of-way, and easements will be based on the current and potential impact and the ecological value of the riparian resources affected.

- LH-4. Use land acquisition, exchange, and conservation easements to meet Riparian Management Objectives and facilitate restoration of fish stocks and other species at risk of extinction.

General Riparian Area Management

- RA-1. Identify and cooperate with federal, Tribal, state and local governments to secure instream flows needed to maintain riparian resources, channel conditions, and aquatic habitat.
- RA-2. Fell trees in Riparian Habitat Conservation Areas when they pose a safety risk. Keep felled trees on-site when needed to meet woody debris objectives.
- RA-3. Apply herbicides, pesticides, and other toxicants, and other chemicals in a manner to avoid impacts that are inconsistent with attainment of Riparian Management Objectives.
- RA-4. Locate water drafting sites to minimize adverse effects on stream channel stability, sedimentation, and in-stream flows.

Watershed and Habitat Restoration

- WR-1. Design and implement watershed restoration projects in a manner that promotes the long-term ecological integrity of ecosystems, conserve the genetic integrity of native species, and contributes to attainment of Riparian Management Objectives.
- WR-2. Cooperate with Federal, State, local, and Tribal agencies, and private land-owners to develop watershed-based Coordinated Resource Man-

agement Plans (CRMPs) or other cooperative agreements to meet Riparian Management Objectives.

Fisheries and Wildlife Management

- FW-1. Design and implement fish and wildlife habitat restoration and enhancement activities in a manner that contributes to attainment of the Riparian Management Objectives.
- FW-2. Design, construct and operate fish and wildlife interpretive and other user-enhancement facilities in a manner that is consistent with attainment of the Riparian Management Objectives. For existing fish and wildlife interpretive and other user-enhancement facilities inside Riparian Habitat Conservation Areas, assure that Riparian Management Objectives are met. Where Riparian Management Objectives cannot be met, relocate or close such facilities.
- FW-3. Cooperate with federal, tribal, and state wildlife management agencies to identify and eliminate wild ungulate impacts that are inconsistent with attainment of the Riparian Management Objectives.
- FW-4. Cooperate with federal, tribal, and state fish management agencies to identify and eliminate impacts associated with habitat manipulation, fish stocking, fish harvest, and poaching that threaten the continued existence and distribution of native fish stocks inhabiting federal lands.

APPLICATION OF STANDARDS AND GUIDELINES

Because Riparian Habitat Conservation Areas (RHCAs) are recognized areas of the watershed within which the agencies should exercise special sensitivity, a set of interim standards and guidelines have been developed to guide management activities therein. These interim standards and guidelines will apply to RHCAs in all watersheds within the range of Pacific anadromous fish and will supplement standards and guidelines for areas of the watershed outside the RHCA that already are present in existing planning documents. In proposing special standards and guidelines for RHCAs we do not intend that activities in other parts of the watershed should be unregulated. The combination of the proposed interim standards and guidelines for RHCAs with the existing standards and guidelines will provide a benchmark for management activities that reflects our increased sensitivities and commitment to ecosystem management. The implementation of this proposal is designed to assure that objectives for watershed condition will be met.

Fragmented and mixed land ownership patterns among federal, state, tribal and private landowners will require special skills in the implementation of the proposed interim standards and guidelines. For some standards and guidelines, it may be possible and appropriate to implement standards and guidelines on Forest Service or Bureau of Land Management administered lands where intermixed with nonfederal lands, regardless of practices on the nonfederal lands. In other situations, such implementation may not be possible or appropriate. For example, road landings and pull-outs could be minimized within RHCAs on Forest Service and Bureau of Land Management lands even if not minimized in riparian zones on nonfederal lands. In this case, implementation of standards and guidelines regarding minimization of road landings and pull-outs in RHCAs on federal lands will help attain Riparian Management Objectives even if the standards is not applied on adjacent nonfederal lands. In some cases, however, such as road maintenance conducted across all jurisdictions by a county government, it may be impractical to implement standards and guidelines only where the road crosses federal lands. Regardless, it is imperative that when dealing with land management activities that occur across lands of mixed ownership that the federal land managers work closely with other land managers to apply PACFISH interim standards and guidelines across all landownerships whenever possible.

Execution of a comprehensive monitoring program is necessary to insure appropriate implementation of interim standards and guidelines and to determine their effectiveness. All monitoring programs should include the following components:

- analysis of whether interim standards and guidelines were properly implemented (implementation component);
- analysis of whether implementation of interim standards and guidelines has helped achieve PACFISH goals and objectives (effectiveness component); and
- analysis of whether the cause and effect relationships that helped shape the interim standards and guidelines remain valid (validation component).

Results of monitoring may indicate the need for revisions of management actions or revisions of interim standards and guidelines to more clearly suit local watershed conditions for achieving PACFISH goals and objectives. If monitoring determines that the interim standards and guidelines have not been properly implemented, the following actions should be taken:

- modify actions to insure proper implementation of interim standards and guidelines; or

- eliminate or delay activity until implementation of interim standards and guidelines can be insured or until such time that revised standards and guidelines more suitable for local watershed conditions have been developed and reviewed.

If monitoring determines that interim standards and guidelines have not been effective in helping to meet PACFISH goals and objectives, or if underlying cause and effect relationships have changed, then revision of standards and guidelines to meet conditions of the local watershed may be necessary.

REVISION OF STANDARDS AND GUIDELINES

The standards and guidelines were developed to establish a consistent application of management sensitivity to activities within RHCAs throughout the entire geographic range of Pacific anadromous fish. The standards and guidelines were written to provide assurance that the Riparian Management Objectives are met, and habitat on lands managed by the Forest Service and the Bureau of Land Management is maintained in, or restored to "good" condition. If monitoring indicates that a change in standards and guidelines (either increasing or decreasing management flexibility) is needed to assure the Riparian Management Objectives are met, any change will be made through subsequent formal changes of the Forest Land Management or Resource Management Plans (i.e. amendments or revisions). Any revision to the standards and guidelines must be based on all of the following criteria:

- the data must clearly indicate that the ecological capability of the system is not being adequately addressed by existing standards and guidelines;
- revision must be driven by sound, locally applicable monitoring results and research;
- the proposed standards and guidelines are supported by analysis and discussion clearly showing the proposed modification(s) better support achievement of PACFISH goals and objectives; and
- the revision will be documented and reviewed by a designated team of watershed/fisheries managers and research scientists.

RIPARIAN HABITAT CONSERVATION AREAS

Description of Recommended Widths

D R A F T

BACKGROUND

Riparian Habitat Conservation Areas (RHCAs) are portions of watersheds where riparian-dependent resources receive primary emphasis and where special Standards and Guidelines apply. Special management sensitivity is expected within RHCAs, however, RHCAs are not "lock-out" zones. RHCAs include those portions of a watershed directly coupled to streams and rivers, that is, the portions of a watershed required for maintaining hydrologic, geomorphic, and ecologic processes that directly affect streams, stream processes, and fish habitats. RHCAs generally parallel the stream network, but also include other areas necessary for maintaining hydrologic, geomorphic, and ecologic processes. RHCAs will be delineated in every watershed on Forest Service and Bureau of Land Management administered land within the range of Pacific anadromous fish.

Prescribed widths for RHCAs of different waterbodies were determined based on several ecological and geomorphic factors. The interim widths described below are designed to provide a high level of fish habitat and riparian protection until Watershed Analysis can be completed. Watershed Analysis will identify critical hillslope, riparian, and channel processes that must be evaluated in order to tailor RHCA delineation to specific watersheds in a manner that assures protection of riparian and aquatic functions. The interim widths will apply until Watershed Analysis is completed, a site-specific analysis is conducted and described, and the rationale for final RHCA boundaries is presented.

INTERIM WIDTHS

Four categories of stream or water body, and the interim widths for each are:

- **Fish-bearing streams:** RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to the outer edges of riparian vegetation, or to a distance equal to the height of two site-potential trees, or 300 feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.
- **Permanently flowing non-fish-bearing streams:** RHCAs consist of the stream and the area on either side of the stream extending from the edges of the active stream channel to the top of the inner gorge, or to the outer edges of the 100-year flood plain, or to the outer edges of riparian vegetation, or to a distance equal to the height of one

site-potential tree, or 150 feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.

● **Ponds, lakes, reservoirs, and wetlands greater than 1 acre:** RHCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the extent of moderately and highly unstable areas, or to a distance equal to the height of one site-potential tree, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest.

● **Seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides, and landslide-prone areas:** This category applies to features with high variability in size and site-specific characteristics. At a minimum the RHCAs must include:

- the extent of landslides and landslide-prone areas,
- the intermittent stream channel and the area to the top of the inner gorge,
- the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation, and
- for Key Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest;
- for watersheds not identified as Key Watersheds, the area from the edges of the stream channel, wetland, landslide, or landslide-prone area to a distance equal to the height of one-half site potential tree, or 50 feet slope distance, whichever is greatest.

In non-forested rangeland ecosystems, the recommended interim width for permanently flowing streams is the extent of the 100 year flood plain. This width is designed to maintain and restore the riparian community and encompass the extent of the active channel. As with forested ecosystems, the area included in the RHCA is important for maintenance of ecological functions such as litter fall, shading, water quality, sediment delivery, and microclimatic condition.

EXAMPLE:

Riparian area widths (one side of stream) and percent of basin in delineated area using Augusta Creek, Oregon, as an example.

Stream Category	Interior Widths (ft) of delineated Riparian Area			
	BLM*	FS**	Not Key Wtrshed RHCA	Key Watershed RHCA
Permanently flowing, fish bearing (high value)	225	200	340	340
Permanently flowing, fish bearing (lower value)	150	100	340	340
Permanently flowing, non-fish bearing	100	100	170	170
Intermittent	0	25	85	170
Percent of watershed in Riparian delineation	8.5	14	36	53

* From draft western Oregon Bureau of Land Management plans.

** From Willamette National Forest plan.

**PACFISH Strategy:
Key Watersheds**

D R A F T

CRITERIA FOR KEY WATERSHED DESIGNATION IN THE CONTIGUOUS US

The Key Watershed concept was designed to provide a pattern of protection across the landscape where habitat for anadromous fish would receive special attention and treatment. These watersheds would protect or restore habitat for listed stocks, stocks of special interest or concern, or salmonid assemblages of critical value for productivity or biodiversity. Areas in good condition would serve as anchors for the potential recovery of depressed stocks, and also would provide colonists for adjacent areas where habitat had been degraded by land management or natural events. Those areas of lower quality habitat with a high potential for restoration would become future sources of good habitat with the implementation of a comprehensive restoration program.

Key Watersheds have already been designated in the owl region in California, Oregon, and Washington. Criteria for designating key watersheds in that geographic region were:

- (1) watersheds with stocks listed pursuant to the Endangered Species Act, or stocks identified in the 1991 American Fisheries Society report as "at risk;" or,
- (2) watersheds that contain excellent habitat for mixed salmonid assemblages; or,
- (3) degraded watersheds with a high restoration potential.

Preliminary identification of key watersheds within the range of Pacific anadromous fish in the contiguous United States but beyond the Owl Forests/Districts has been initiated, and needs to be validated and completed by the PACFISH Field Team. Identification of Key Watersheds in Alaska has not yet begun.

POTENTIAL MODIFICATION OF KEY WATERSHED CRITERIA FOR APPLICATION IN ALASKA

To designate Key Watersheds in Alaska, the criteria used in the Owl Forests/ Districts would have to be modified to accommodate the fact the the 1991 American Fisheries Society report did not examine the status of Pacific anadromous fish stocks in Alaska,

and thus did not report any Alaska stocks as "at risk." However, a report published in 1987 (by G.W. Konkel and J.D. McIntyre in the U.S. Fish and Wildlife Service Technical Report 9) on trends in spawning populations of Pacific anadromous salmonids suggests that coho and chum salmon populations (in general) had declining trends, while chinook, sockeye and pink salmon populations had increasing trends in Alaska. Steelhead trout stocks also are believed to be declining in Alaska.

Several studies are underway to determine the status of Pacific anadromous fish stocks in Alaska. In 1992, Forest Service researchers began an investigation to identify the unique stocks of anadromous fish on National Forests in Alaska. In addition, the Alaska Chapter of the American Fisheries Society has formed a steering committee and received funding to conduct a study identifying anadromous fish stocks "at risk" throughout the state.

If National Forests in Alaska are to be examined for identification of Key Watersheds, the following systems might be a good candidates for designation:

- (1) Any system with a unique or sensitive stock identified in the partnership study by R-10 and PNW.
- (2) A sample of tributaries to mainland trans-boundary rivers (and/or the main-stems of the rivers themselves). These might contain stocks of very different genotypic and phenotypic character from small coastal or island systems.
- (3) A sample of large island stream systems that contain multiple species and stocks of anadromous salmonids.
- (4) A sample of small island and mainland stream systems that contain small runs of anadromous salmonids. Such systems would be highly vulnerable to natural or human disturbance.
- (5) A sample of systems with unusually high productivity for anadromous salmonids. ADF&G should have a list from which to choose.
- (6) A sample of streams draining geologic features of unusual nature, for example, the karst formation on North Prince of Wales Island.

Definition of a key watershed network should begin with an examination of existing reserves (wilderness, National Monuments, etc) and then use the above criteria to complete a relatively even distribution of refugia across the National Forests of Alaska (see maps of key watersheds in Oregon, Washington, and California as examples).

A similar modification of criteria would need to be made for designation of Key Watersheds on BLM administered public lands in Alaska.

PACFISH Progress Report
24 January 1994

The Forest Service (FS) and Bureau of Land Management (BLM) are continuing with preparation of supporting documents for PACFISH without significant deviation from the implementation strategy and timeframes discussed with USDA Assistant Secretary Jim Lyons on December 17. Progress on specific elements of the implementation strategy is highlighted below.

PACFISH Environmental Assessment (EA): The PACFISH EA (addressing interim direction necessary until completion of the Environmental Impact Statements) has been drafted, and was sent to the PACFISH Field Team members for preliminary review and edit. We anticipate a mid-February Federal Register Announcement initiating a 45 day public review period of the EA. Since our December 17 meeting with the Department of Justice, BLM has moved considerably closer to the Forest Service position on the nature of interim direction (i.e., it is to be binding direction for field units). BLM has also decided to be a signatory to the PACFISH EA and Finding of No Significant Impact.

This EA for interim direction addresses the Idaho portion of the Snake River Basin, Eastside area and the portions of California having FS and BLM administered anadromous fish habitat beyond that covered by FEMAT.

Alaska is discussed in the EA, but interim direction will not be included in the application of interim direction. Studies in Alaska are being initiated on the Tongass National Forest in response to direction in the Appropriations Act for FY 94. Similar examination, before issuance of any interim direction, also will occur on the Chugach National Forest and BLM Districts in Alaska.

Appropriate interim direction would not be implemented until we have the benefit of reviewing the final FEMAT EIS and have analyzed public comment on the PACFISH EA. We anticipate these reviews will have occurred in time for implementation of interim direction by mid-April.

Eastside Notice of Intent (NOI): The Washington Offices of the FS and BLM have worked closely with the agencies' field units to reach agreement on specific language for the NOI to prepare an Environmental Impact Statement for the Eastside. We anticipate issuance of this NOI in early February - prior to release of the PACFISH Environmental Assessment and NOI's for Idaho and California. The Eastside NOI will not be issued until approved by FS Associate Chief Dave Unger for release.

Idaho and California NOI's: NOI's for the Idaho and California EIS's have been drafted and are being edited. These NOI's will be ready for publication at about the same time we publish the Decision Notice for interim direction after the public review period of the associated environmental assessment and review of the final FEMAT EIS (i.e. about mid-April).

Section 7 Consultations: The National Marine Fisheries Service (NMFS) met with Forest Service representatives in Portland on December 9 and agreed to the flexibility indicated in the draft PACFISH strategy, provided that adequate assessment and documentation occurred as part of Section 7 Consultations. This agreement represents improved understanding and coordination among the agencies, and should lead to increased efficiency in processing FS and BLM project proposals through Section 7 Consultations. This agreement is documented in the enclosed copy of a letter from Gary Smith, Acting Director for the Northwest Region of NMFS.

NMFS also agreed, at the December 9 meeting, to coordinate with the Fish and Wildlife Service to expedite consulting on the proposed PACFISH interim direction. This consultation would be jointly requested by the BLM and FS, and be jointly responded to by the NMFS and FWS. The consultation request and biological opinion would cover the entire geographic area of the proposal for implementation of interim direction as described in the EA. Consultation would occur during the same time period that the EA is being reviewed by the public.

Summary of PACFISH Strategy Elements

Enclosed for information are a summary of the PACFISH elements, and an information folder containing several documents that further elaborate on the substance and intent of the proposed PACFISH strategy. The folder includes a booklet of background information on why the strategy was developed, an executive summary, and detailed explanations for several of the key PACFISH strategy elements.

Elements Of The PACFISH Strategy

A Summary

The PACFISH strategy consists of 8 inter-related elements. These 8 elements provide for a consistent approach to management of anadromous fish producing watersheds on Forest Service and Bureau of Land Management administered public lands. The strategy is adaptive in nature and provides for flexibility based on local information and conditions. The 8 elements of the strategy include:

Riparian Goals that call for the maintenance or restoration of:

- water quality;
- stream channel integrity, channel processes and sediment regimes;
- instream flows;
- timing and variability of water table elevation in meadows and wetlands;
- diversity and productivity of native and desired non-native plant communities to provide large woody debris, thermal regulation, and bank stability; and
- viability of riparian-dependent communities (i.e. native and desired non-native plants, vertebrates, and invertebrates).

Riparian Management Objectives (RMOs) that provide quantifiable definition of desirable habitat conditions. Interim landscape scale RMO's have been developed to guide land management decisions prior to completion of watershed analysis. Watershed-specific objectives, tailored to the geology, topography, climate, vegetation, and needs of specific salmonid assemblages, will be substituted for the interim objectives as watershed analyses are completed for individual drainages.

Standards and Guidelines (S&Gs) for implementation of management activities (e.g., timber harvest, livestock grazing, road construction, etc.) within Riparian Habitat Conservation Areas on National Forests and BLM administered public lands that support Pacific anadromous fish stocks. These S&Gs are intended to provide for continued multiple-use while focusing on attainment of RMOs.

Riparian Habitat Conservation Areas (RHCAs) are delineated to identify those portions of the landscape that most influence the delivery of high quality water, sediment, nutrients, and structural elements (e.g., large wood) to anadromous fish streams. RHCAs include the riparian corridor along permanent fish-bearing streams, and also include areas of unstable soils, wetlands, intermittent headwater streams, and other ecological significant areas. Although RHCAs are not "lock-out" buffers, as noted above, they receive special attention in the form of S&Gs to ensure RMOs are met.

Until Watershed Analyses are completed to provide for watershed specific location of RHCA boundaries, minimum interim widths are applied. These interim widths are:

- Fish bearing streams and lakes 300 ft (either side)
- Permanently flowing non-fish 150 ft (either side)
 bearing streams
- Ponds, reservoirs, and wetlands 150 ft (from the perimeter)
 less than 1 acre
- Seasonally flowing or intermit- 100 ft in Key Watersheds, or 50 ft in
 tent streams, wetlands < 1 acre, non-key watersheds
 landslides/landslide-prone areas

In non-forested rangeland ecosystems, the minimum interim width for permanently flowing streams is the extent of the 100 year flood plain.

Key Watersheds are identified to provide a network of drainages across the landscape to contribute to conservation of anadromous fish resources. This subset of watersheds was selected because they are important to "at risk" stocks, or currently are in "good" condition, or have a high potential for restoration. Key watersheds will receive top priority for watershed analysis and restoration activities. Interim RHCA widths in Key Watersheds differ from those in non-key watersheds as specified above.

Watershed Analyses will be conducted to identify "problem" areas that need immediate, corrective treatment, and will provide a more complete assessment of cumulative effects. Watershed analysis also will provide information to tailor RHCA boundaries and interim RMOs to better fit watershed specific conditions.

Watershed Restoration will be necessary to initiate recovery in some watersheds. All restoration work will be designed at a watershed/landscape scale and will involve coordination between changes in land management activities and active restoration projects. Information gathered through watershed analyses will be used to guide implementation of restoration activities.

Monitoring application and effectiveness of S&Gs will provide information essential to modification of S&Gs and attainment of RMOs.

Application of the PACFISH strategy will help limit the need for additional listing of anadromous salmonids, and where salmon stocks have already been listed will provide a basis for continued multiple-use management while stocks are recovered.



National Oceanic and Atmospheric Administration
NORTHWEST REGION
7600 Sand Point Way N.E.
BIN C15700 Bldg. 1
Seattle, WA 98115

DEC 22 1993

Dr. Phil Janik
U.S. Forest Service
Wildlife and Fisheries Programs
201 14th Street S.W.,
at Independence Ave S.W.
Washington DC 20250

Re PACFISH Interim Riparian Protection and Section 7
Consultation

Dear Dr. Janik:

Thank you for taking the time to met with us on December 9 to discuss the draft PACFISH Strategy as it relates to section 7 consultations in the Snake River Basin. The dialog was positive, allowing our staffs to clarify their understanding how the draft PACFISH strategy relates to consultations. In order for us to move forward with a common understanding, I would like to take this opportunity to summarize the two main points of agreement between National Marine Fisheries Service (NMFS) and the Forest Service reached during our meeting.

1. The interim Riparian Habitat Conservation Area (RHCA) widths specified in the draft PACFISH Strategy will apply throughout the Snake River Basin for the purposes of section 7 consultations. Any activities proposed within these RHCAs must either directly benefit or not degrade anadromous fish habitat. Adoption of the interim RHCA widths would be encouraged, however, deviations could be considered if watershed analyses in the biological assessments support such a change. Supporting analyses would consider the same physical and biological criteria used to establish the interim RHCA widths, and should use scientific information and professional judgement to document how RHCA objectives and NMFS' requirement for adequate improvement over the base period would be met. The Columbia River Basin Coordinator's Office would review all such analyses before they are forwarded to NMFS for consultation.
2. To expedite the consultation process, the Forest Service will work closely with NMFS and the Fish and Wildlife Service while preparing the biological assessment that will



accompany the environmental assessment for interim implementation of the PACFISH strategy while environmental impact statements are being prepared. This approach will provide an early opportunity to resolve PACFISH implementation issues that have been identified by NMFS and others, e.g., adequacy of the RHCA objectives and roadless area management.

Thank you again for taking the time to meet with us. We welcome every opportunity to improve coordination and understanding between our agencies. If you have any questions please contact me or Jeff Lockwood of my staff at (503) 231-2339.

Sincerely,

Gary Smith
Acting Regional Director

cc: Gordon Haugen

PACFISH STRATEGY

Executive Summary

Revised September 29, 1993

Introduction

The purpose of this executive summary is to provide an overview of the background, issues and current status of the Pacific salmon and steelhead management strategy of the USDA Forest Service (Forest Service) and USDI Bureau of Land Management (BLM). Updates to this briefing will be provided periodically.

Over the past several years, significant new research information about the status of Pacific salmon and steelhead stocks, current habitat conditions, and habitat requirements has become available. This new information makes it necessary for the Forest Service and BLM to take immediate and long-term actions to assure proper management of anadromous fish habitat in Alaska, California, Idaho, Oregon and Washington. Changes in management guidance will affect about 75% of the Ranger Districts on 34 National Forests in five Forest Service Regions and 29 Area Offices on 16 Districts in four BLM State Offices.

Background

Pacific anadromous salmonids (including salmon, steelhead and sea-run cutthroat trout, and dolly varden) occur naturally from southern California northward to the Arctic Ocean. These fish are comprised of a large number of stocks, or populations that originate from specific watersheds during specific times of year as juveniles, migrate to the ocean, and generally return to reproduce in their natal streams at the same time of year they were spawned. In many areas of the West Coast, naturally reproducing stocks of Pacific salmon, steelhead and sea-run cutthroat trout are at risk of extinction. Of the more than 400 stocks from California, Idaho, Oregon, and Washington recently evaluated in a report published by the American Fisheries Society (AFS), 214 were considered to be at "moderate" or "high" risk of extinction or of "special concern," 106 were extinct, and about 120 were considered secure.

About 134 "at risk" stocks identified by the AFS published report are found on National Forests and 109 are found on Public Lands administered by the BLM. Recent information suggests that coho and chum salmon, and steelhead stocks in Alaska probably are declining also. To more accurately characterize the situation in Alaska, Forest Service researchers began an investigation in 1992 that is due to be completed in late spring 1993 to identify the unique stocks of anadromous fish on National Forests in Alaska. The Alaska Chapter of the AFS has undertaken a review of the status of anadromous fish throughout the state of Alaska and in 1994 expects to publish a report on stocks at risk in Alaska.

Reasons for the decline of the Pacific anadromous salmonids vary by species and geographic area. The depressed status of the 214 stocks reflects the interaction of inherently variable environmental conditions, such as oceanic productivity and weather patterns, and a variety of management activities. In general, stock survival is threatened by some combination of hydroelectric development and operation, fish harvest, fish hatchery influences on disease and genetic fitness, and fish habitat conditions. These management activities sometimes are referred to as the "four H's."

- o **Hydroelectric**, flood control, and irrigation dams have reduced fish production in many drainages throughout the range of the Pacific salmon, steelhead, and sea-run cutthroat trout. This is especially true in the San Joaquin and Sacramento River Valleys of central California, and the Columbia River Basin of Idaho, Oregon and Washington. Recovery of as many as 20% to 40% of the stocks identified in the AFS published report as "at risk" is limited primarily by dam operations. The problem of hydroelectric development and operations is particularly acute in the Columbia River Basin, where: (a) more than 30% of the salmon, steelhead and sea-run cutthroat trout's historic range has been blocked by dams without fish passage facilities, (b) adult fish have difficulty in locating and negotiating past dams where ladders have been installed, (c) direct mortality of juvenile fish as a result of passing through power turbines is estimated at 12-20% per dam, and (d) mortality of juvenile fish has increased due to an approximately four-fold increase in downstream travel time (from 7-9 days to nearly 4 weeks) as a result of turning all but about 50 miles of the Columbia River into a series of placid lakes. The demise of a large majority of the extinct stocks is attributable to dam construction and operation.
- o **Harvest** of Pacific salmon, steelhead, and sea-run cutthroat trout occurs in a variety of sport, commercial, and subsistence fisheries. Because small naturally spawning fish stocks mix in the ocean with abundant hatchery stocks, management for a "maximum sustained yield" can result in overharvest of some stocks, appropriate harvest of some, and underharvest of others. Further confounding the issue is the fact that some commercial harvest occurs outside the national waters of the U.S. and of Canada, and much of the subsistence harvest is guaranteed under treaty or given special priority by law. As a result, complex jurisdictional authorities must grapple with allocating a "fair share" of an ever-dwindling resource among various nations, states, and tribes.
- o **Hatcheries** were built to be a part of the solution to declining populations of salmonids. However, many have become part of the problem and some have had a subtle, but adverse impact. Traditional hatchery practices have contributed to the decline, or may limit recovery, of 104 of the 214 stocks identified in the AFS published report as "at risk." Hybridization of hatchery stock with wild salmonids can reduce the genetic fitness of the wild stock by affecting run timing and life history characteristics important to long-term viability. Competition between juvenile wild salmon, steelhead, and sea-run cutthroat trout and juvenile hatchery fish (that typically are larger because of hatchery feeding and/or time of hatching, and are released in large numbers) can be overwhelming. Further, crowded rearing conditions, warmer water, and greater concentrations of fish waste in many hatcheries can increase the incidence of disease among hatchery fish that can be transmitted to naturally-reproducing fish. Genetic contamination of the

remaining lower Columbia River coho population by hatchery fish, and the resulting extinction of "wild" genes, was one of the primary reasons cited by the National Marine Fisheries Service in their decision that listing the stock was not warranted.

- o **Habitat** is an very important component of salmonid production. In fact, declining habitat condition is the single factor affecting nearly all of the stocks at risk. Degradation of spawning and rearing habitat has occurred on all land ownerships throughout the range of Pacific anadromous fish stocks. Detrimental changes in habitat condition include reduction in water quality (as measured by increases in temperature, sedimentation, changes in nutrient levels and water chemistry, and the presence of toxic substances), changes in water quantity and/or timing of water flow, and reduction in habitat complexity (as indicated in loss of deep pools, reduction in amounts of large woody debris, and changes in width:depth ratios and bank angles).

The Forest Service and BLM have an important role to play in the management of watersheds and fish habitat in Alaska, California, Idaho, Oregon, and Washington. The watersheds on National Forests encompass approximately 50% of the remaining freshwater anadromous fish spawning and rearing habitat in the lower 48 states and about 25% of such habitat in Alaska. Public Lands managed by the BLM include 13,200 stream miles in the lower 48 states and 133,000 miles in Alaska that provide anadromous fish spawning and rearing habitat.

For those stocks affected primarily by habitat factors, the management of watersheds to ensure good fish habitat on National Forests and Public Lands is important. Management of these lands also can play an important role in moderating the rate of decline for those stocks affected primarily by hydroelectric development and operations, hatcheries, and fish harvest, and can provide a buffer against environmental extremes. Of the 134 "at risk" stocks identified in the 1991 AFS published report that are found on National Forests in the lower 48 states and the 109 "at risk" stocks that are found on BLM administered Public Lands, approximately 23% are affected primarily by hydroelectric development and operation. For the remaining stocks that are limited primarily by other factors (habitat, harvest, hatcheries), poor habitat condition most often is the primary cause of decline or impediment to recovery.

PACFISH Strategy Framework

The 1991 AFS published report, coupled with the November 1991 listing of the Snake River sockeye salmon as endangered and the April 1992 listing of the Snake River spring/summer and fall chinook salmon as threatened, served as a wake-up call for the Forest Service, BLM, and others to provide more sensitive management of Pacific anadromous fish and their habitat. In an effort to address the issue of declining fish stocks in the Alaska, California, Idaho, Oregon and Washington, the Forest Service initiated a team effort in early spring 1992 to undertake an assessment and develop a management strategy that addresses the habitat needs of all Pacific anadromous "at risk" stocks on National Forests (see December 1992 Informational Report). During this same time, the BLM began revising its 1988 "Anadromous Fish Habitat on Public Lands" strategic plan. In March 1993, the Forest Service and the BLM announced their commitment to develop a common strategy for management of Pacific salmon and

steelhead habitats and associated watersheds on Forest Service and BLM administered lands in the West. This comprehensive strategy has become known as "PACFISH."

To facilitate a strong linkage between management and research, the PACFISH effort is staffed with technical specialists and managers from the Forest Service National Forest System and the BLM, and research scientists from the Forest Service research organization. The organizational framework for the PACFISH effort includes three components:

- o **Washington Office Policy Group** - Provides overall direction for development of the strategy. This group is led by USDA-FS Associate Deputy Chiefs Dave Unger, National Forest System, and Eldon Ross, Research, and USDI-BLM Deputy Assistant Director Kemp Conn, Land and Renewable Resources. Members of the group include Washington Office Staff Directors from the Forest Service and Washington Office Division Chiefs from the BLM. Ad hoc members include representatives from the Department of Agriculture Office of General Counsel and the Department of Interior Office of the Solicitor.
- o **Washington Office Work Group** - Established to work with the Field Team to develop the strategy for managing salmon and steelhead habitats on Forest Service and BLM administered lands. This group is led by Forest Service Assistant Director for Wildlife and Fisheries Phil Janik, Pacific Northwest Research Station Aquatic/Land Interactions Program Team Leader Jim Sedell, BLM Science Advisor Jack Williams, and BLM Rangeland Resources Branch Chief Glen Secrest. Core members include representatives with expertise in fisheries, economics, public affairs, watershed management, land management planning, and range management. Additional representatives with other expertise serve ad hoc as needed.
- o **Inter-regional Field Team** - Established to provide information and work with the Washington Office Work Group in the development of the strategy. This team is led by Forest Service Deputy Regional Forester Bob Joslin and Pacific Northwest Research Station Aquatic/Land Interactions Program Project Leader Fred Everest, and BLM Deputy State Directors for Resources Elaine Zielinski (OR/WA) and Dick Bastin (ID). Members include representatives from each of the three Forest Service Research Stations (PSW, PNW, INT) and five Regions (1, 4, 5, 6, 10), and each of the four BLM State Offices (CA, ID, OR/WA, AK) responsible for management of Pacific anadromous fish habitat. Forest Service and BLM Anadromous Fisheries Coordinators, Gordon Haugen and Bob House, assist with Field Team activities.

Current Habitat Conditions Were Assessed

As part of the PACFISH assessment, Forest Service research scientists, working with fisheries biologists and watershed specialists on National Forests with Pacific anadromous fish habitat, have characterized current habitat conditions in many watersheds on National Forests and other lands in Alaska, California, Idaho, Oregon and Washington. Generally, these habitats have 30% to 70% fewer large, deep pools, more fine sediments in spawning gravels, and greater disturbance of riparian vegetation than is acceptable and have experienced a reduction in fish habitat capability. These downward trends in

habitat conditions represent the cumulative effects, across all ownerships, of past and present land management activities. For example:

- o **Coastal Oregon** streams on west-side forested lands have been degraded. The amount of bedrock bottom exposed has gone from 30% to 80-90%. Pool-riffle ratios have gone from about 50:50 to 20:80 or 10:90 based on Oregon Game Commission surveys in 1960 and Forest Service surveys in the 1970's. The loss of 50% of deep pools and complex edges since late 1960's translates directly into a 50% loss of summer rearing habitat for juvenile salmonids. Stream channel condition in 77% of the 211 miles of anadromous fish habitat in BLM's Salem District of western Oregon fail to meet desired BLM standards.
- o **East-side Oregon** habitat in the Upper Grande Ronde River Basin has been degraded. 80% of fish habitat fails to meet current Forest Plan standards and guidelines for temperature, sediment, and riparian condition. 20% exceeds current Forest Plan standards and guidelines. BLM habitat in the basin has undergone similar degradation.
- o **Upper Snake River Basin** habitat in the developed portions of the Middle Fork Clearwater and Lochsa Rivers watersheds on the Clearwater National Forest in Idaho have been degraded. 70% fail to meet Forest Plan standards and guidelines. Between 1935 and 1992, the number of large pools in the Salmon River Basin has decreased by 52% in managed watersheds and increased by 29% in Wilderness area watersheds.

"Good" Habitat Conditions Were Defined

With the help of historic inventory and survey data, as well as current research, "good" anadromous fish habitat conditions have been defined. This was determined by comparing quantitative habitat surveys, completed between 1989 and 1992, with surveys done by the Bureau of Fisheries, now the National Marine Fisheries Service, between 1934 and 1941 on 116 watersheds in Alaska, Idaho, Oregon and Washington. "Good" habitat has been defined using physical features as surrogates for the processes that form salmonid habitat. One key feature (pool frequency) and four supporting features (water temperature, amount of large woody debris interacting with stream channels, streambank stability and bank angle, and width to depth ratio of stream channels) are used to describe habitat quality. In "good" habitat, all five features are above the following threshold levels:

- o **Pool Frequency** (pools per mile). Varies by wetted width of stream.

Wetted Width:	5	10	15	20	25	50	75	100	125	150	175	200
Pools/Mile:	184	96	70	56	47	26	23	18	14	12	10	9
- o **Water Temperature.** Compliance with State Water Quality standards generally provide adequate protection for salmonid assemblages, except that summer temperatures should be less than 68 degrees F.

- o **Large Woody Debris.** The amount of large wood debris needed varies by geographic location.
Southeast Alaska, Northern California, and western Oregon and Washington: greater than 80 pieces per mile; greater than 24 inch diameter; greater than 50 foot length.

East of Cascade Crest in Oregon, Washington, and Idaho: greater than 20 pieces per mile; greater than 12 inch diameter; greater than 35 foot length.
- o **Bank Stability and Lower Bank Angle** (non-forested setting): Bank stability exceeds 80%. 75% of banks should be undercut (i.e. less than 90 degree angle). Less than 25% of bank angles should be greater than 90 degrees.
- o **Width to Depth Ratio:** less than 10 in all systems (measured as mean wetted width divided by mean depth).

Elements Of The PACFISH Strategy

The PACFISH effort is a proactive, ecosystem approach to management of watersheds and Pacific anadromous fish habitats across five Forest Service Regions and four BLM state administrative units, including the states of Alaska, California, Idaho, Oregon and Washington. Eight alternatives are being evaluated, including six developed by the PACFISH Field Team, alternative 8A from the Gang of Four Report, and a draft riparian management strategy from Region 5 of the Forest Service. The eight alternatives include some combination and application of Riparian Goals, Riparian Management Objectives (RMOs), standards and guidelines, Riparian Habitat Conservation Areas (RHCA's), key watershed identification, watershed analysis, and watershed restoration. The PACFISH strategy is building upon a scientifically sound assessment that characterizes current habitat conditions, provides an understanding of the elements of "good" habitat condition, provides the knowledge of how to manage watersheds to maintain "good" habitat where it now occurs and achieve "good" habitat conditions in areas that currently are degraded.

- o **Riparian Goals** are being refined that call for the maintenance or restoration of: (a) water quality to a degree that provides for stable and productive ecosystems (i.e. timing and character of temperature, sediments and nutrients), (b) stream channel integrity, channel processes and sediment regime under which the ecosystems developed (e.g. timing, volume, and character of sediment input and transport), (c) instream flows to support desired riparian and aquatic habitats, stream channel stability and effective function, and ability to route flood discharges, (d) natural timing and variability of the water table elevation in meadows and wetlands, (e) diversity and productivity of native and desired non-native plant communities, (f) riparian vegetation so amount and distribution of large woody debris is characteristic of natural riparian and aquatic ecosystems, (g) habitat for populations contributing to viability of riparian-dependent communities (i.e. native and desired non-native plants, vertebrates, and invertebrates), (h) riparian vegetation for adequate summer and winter thermal regulation, (i) riparian vegetation so the rates of surface and bank erosion and channel migration are similar to the rates under which the communities developed, and (j) riparian and

aquatic habitats for the unique genetic stocks that evolved within that specific geo-climatic region.

- o **Interim Riparian Management Objectives** that provide quantifiable definition of desirable habitat conditions are being developed to guide land management decisions prior to completion of watershed analysis. Watershed-specific objectives, tailored to the geology, topography, climate, vegetation, and needs of specific salmonid assemblages, will be substituted for the interim objectives as watershed analyses are conducted for individual drainages.
- o **Standards and Guidelines** for all National Forests and BLM administered Public Lands that support Pacific anadromous fish stocks are being developed.
- o **Riparian Habitat Conservation Areas (RHCAs)** where particular management sensitivity is warranted are being defined. RHCAs include the traditional riparian corridor along permanent fish-bearing streams, and also include areas of unstable soils, wetlands, intermittent headwater streams, and other areas where proper ecologic functioning is crucial to maintenance of the stream's water, sediment, woody debris and nutrient delivery systems. Based on regional averages throughout the five state area, minimum interim widths for delineation of RHCAs, in the absence of site-specific information, are as follows:

Fish bearing streams and lakes	=	300 ft
Permanently flowing non-fish bearing streams	=	150 ft
Ponds, reservoirs, and wetlands > 1 acre	=	150 ft
Seasonally flowing or intermittent streams, wetlands < 1 acre, landslides and landslide-prone areas	=	100 ft in Key Watersheds or = 50 ft in non-key watersheds

In non-forested rangeland ecosystems, the minimum interim width for permanently flowing streams is the extent of the 100 year flood plain.

- o **Key Watersheds** are being identified by selecting a subset of watersheds that are important to "at risk" stocks, or currently are in "good" condition, or have a high potential for restoration, so as to provide a pattern of protection across the landscape. Key watersheds will receive top priority for watershed analysis, maintenance and restoration activities. Interim RHCAs in Key Watersheds differ from those in non-key watersheds as specified above.
- o **Watershed Analyses** will be conducted to identify "problem" areas that need immediate, corrective management, and will provide a more complete assessment of cumulative effects. Watershed analysis also will allow the delineation of RHCAs

to be tailored to site specific conditions, and will provide the foundation for determining modifications to the interim Riparian Management Objectives necessitated by site specific conditions. Watershed Analyses will be certified by appropriate line officers upon completion. Public involvement in watershed analyses will be encouraged.

- o **Watershed Restoration** efforts in key watersheds will receive priority. All restoration work will be designed at a watershed/landscape scale and will involve coordination between changes in land management activities and active restoration projects.
- o **Modified Planning Direction** is being developed to improve consistency of content and approach in Forest Service and BLM planning documents.

Implementation Process

Direction provided by the PACFISH strategy will be science based, practical, and economically feasible. It also will provide assurance to the public that we are responding seriously to the situation. Because of the critical status of many of the "at risk" anadromous fish stocks, the need to halt further degradation, and the desire to improve management efficiency and consistency, consideration is being given to the issuance of interim direction that will apply to Forest Service and BLM stewardship of anadromous fish habitat on National Forests and Public Lands in the West. Selection of final management direction will occur with public involvement in the review and analysis of a full range of alternatives that meet technical and legal requirements, and will comply with NEPA and other applicable laws.



Department
of the
Interior

Bureau of Land Management
Washington, D.C. 20240

Department
of
Agriculture

Forest Service
Washington, D.C. 20013



Reply to: BLM: 6840

Date: 26 MAR 1993

FS: 2670

Subject: BLM/Forest Service Cooperative Strategy for Watershed and
Fisheries, and Habitat Management

To: BLM: WO 200; WO 700; State Directors, Oregon, Idaho, California,
and Alaska

FS: Regional Foresters, R-1, 4, 5, 6, 10; Station Directors,
PSW, PNW, and INT

This letter announces the commitment by the USDI Bureau of Land Management (BLM) and USDA Forest Service (FS) to cooperatively develop a common strategy for management of Pacific salmon and steelhead habitats and associated watersheds on BLM and FS administered lands in the West. This commitment is being pursued in the spirit of inter-agency cooperation being emphasized by Secretary of Agriculture Espy and Secretary of the Interior Babbitt.

Both agencies currently are involved in an intensive consultation process with the National Marine Fisheries Service for actions that may affect listed species in the Columbia River Basin. The BLM recently completed its Columbia/Snake River Anadromous Fish Management Initiative and the Forest Service has in place an inter-regional policy that guides efforts to maintain and restore Columbia River Basin fish habitats.

For the past year, the Forest Service has expanded its focus beyond the Columbia River Basin and has been developing a comprehensive management strategy for all Pacific salmon and steelhead habitat on National Forests throughout the West. This effort commonly is referred to as PACFISH.

On March 16, an inter-agency meeting was held in Washington, D.C., to explore ways the BLM and the Forest Service could work together to develop a common strategy for the management of salmon and steelhead habitats in California, Oregon, Washington, Idaho, and Alaska. As a result of this meeting, the BLM has agreed to merge its activities into the on-going Forest Service PACFISH strategic planning program. To facilitate this effort, BLM and Forest Service representatives have been designated to work together at all three PACFISH "levels" (National Policy Group, Washington Office Work Group, and Field Team). The responsibilities and representatives for each group are as follows:

National Policy Group: A Washington Office Policy Group provides the overall direction for the development of the strategy and assures involvement of all affected program staffs. This group currently is led by FS Associate Deputy Chiefs Dave Unger (National Forest System) and Eldon Ross (Research). BLM Deputy Assistant Director for Land and Renewable Resources, Kemp Conn, will join this group as co-leader for the BLM.

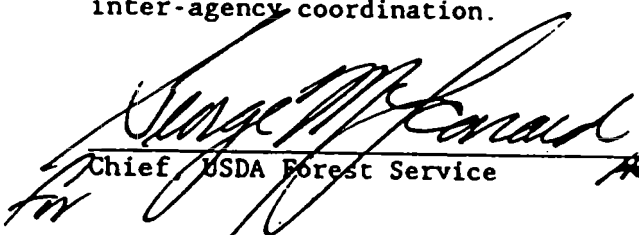
Working Group: The Washington Office Working Group is responsible for developing the strategy for managing salmon and steelhead habitats on National Forest System, and now BLM, administered lands. This group works with the Field Team and currently is led by Phil Janik, FS Assistant Director of Wildlife and Fisheries, and Jim Sedell, Pacific Northwest Research Station. Jack Williams, BLM Science Advisor, assisted by Glen Secrest, Chief, Branch of Rangeland Resources, will join as co-leaders.

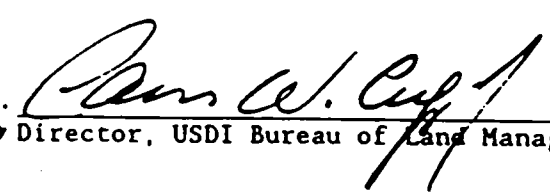
Field Team: An inter-regional Field Team provides information and works with the Washington Office Work Group in the development of the strategy. This Team currently is led by FS Deputy Regional Forester Bob Joslin (Intermountain Region) and Fred Everest (Pacific Northwest Research Station). BLM Deputy State Directors for Resources Elaine Zielinski (OR/WA) and Dick Bastin (ID) will join this group as co-leaders for the BLM. Gordon Haugen, FS Anadromous Fisheries Coordinator, and Bob House, BLM National Anadromous Fish Habitat Coordinator, will assist with Field Team activities.

Legal matters associated with the development of the strategy will be coordinated by Ron Mulach, USDA Office of General Counsel, and Mark Etchart, USDI Office of the Solicitor. Additional members of the Policy Group, Working Group, Field Team, and ad hoc members will be identified as needed. These groups will meet in the near future. Once decisions are made on a common strategy, it will be implemented through on-going resource planning efforts, such as the Western Oregon Resource Management Planning of the BLM and the FS Forest Planning process.

Enclosed for your information is a copy of the FS document that describes the goals and objectives of the strategy being developed. Also enclosed is a one-page fact sheet on the effort. If you have any questions regarding these matters, please contact either Phil Janik at (202) 205-1207 or Jack Williams at (202) 208-7701.

Development of a joint anadromous fish habitat management strategy will be an important step in meeting both of our agencies' goals of ecosystem-based management within watersheds, regardless of our Federal jurisdictional boundaries. We appreciate your support and commitment in strengthening our inter-agency coordination.


Chief, USDA Forest Service


Director, USDI Bureau of Land Management

Enclosures

USDI Bureau of Land Management and USDA Forest Service
Salmon and Steelhead Habitat Management Strategy
(PACFISH)

I. REASON FOR STRATEGY DEVELOPMENT

- * American Fisheries Society's 1991 publication on fish stocks at risk.
- * Habitat degradation is one of the reasons for decline of stocks. Hatcheries, harvest of fish, and hydroelectric development and operations are other reasons.
- * National Forests contain about 50% of the remaining freshwater anadromous fish habitat in the lower 48 states and about 25% of such habitat in Alaska. BLM administered Public Lands include 13,200 stream miles of anadromous fish habitat in the lower 48 states and 133,000 miles in Alaska.
- * Need to address the issue across and between Forest Service Regional and BLM State boundaries. Five Forest Service Regions and four BLM State Offices are involved.
- * Improve consistency among the 34 National Forests and among the 16 BLM Districts.

II. THE ASSESSMENT

- * Existing habitat conditions on National Forests and BLM Public Lands--described.
- * "Good" habitat--described.
- * Distribution of "at risk" stocks on National Forests and BLM Public Lands--mapped.

III. KEY ELEMENTS OF STRATEGY

- * Key watershed identification.
- * Definition of riparian habitat conservation areas.
- * Riparian goals and objectives identified.
- * Update of standards and guidelines.
- * Watershed analysis process developed.
- * Economic and non-economic value analysis being conducted.
- * Watershed/fish habitat restoration.

IV. OTHER IMPORTANT ELEMENTS

- * Inventory.
- * Monitoring.
- * Coordination.
- * Accountability.
- * Budget and staffing needs.
- * Priority setting.
- * Planning criteria.

V. SIGNIFICANT FEATURES

- * Research/management partnership.
- * Ecological approach (i.e. aquatic component to ecosystem management).
- * Watershed scale.
- * Involvement by all resource program areas.
- * Coordination between Forest Service and BLM, with potential for coordination with other agencies and groups.
- * May help prevent need for listing of some stocks.

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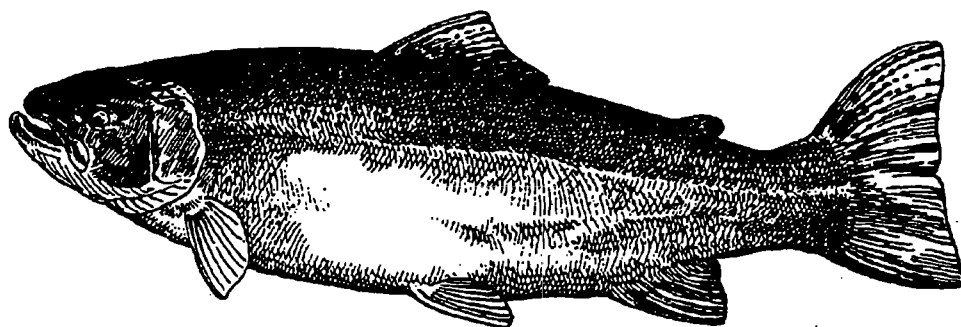
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Informational Report

Background Report for Development of the Forest Service Management Strategy for Pacific Salmon and Steelhead Habitat



Report prepared by:

United States Department of Agriculture
Forest Service

Pacific Salmon Work Group and Field Team



December 1992