HJR

56

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STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

September 28, 1993

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To Cindy Roberts	From Paul
Co.	Co.
Dept.	Phone #
Fax # 465-5442	Fax # 5-3075

The Honorable Tom Bevil
United States House of Representatives
2302 Rayburn House Office Building
Washington, DC 20515

Dear Representative Bevil:

Undoubtedly you have heard much about a joint U.S. Forest Service/Bureau of Land Management fisheries management strategy called PACFISH. It has emerged as a management strategy to redress the extreme habitat degradation and decline of anadromous fish stocks in Washington, Oregon, Idaho, and California. This strategy is not needed in Alaska, as we do not face the same habitat degradation. Therefore, I am writing to you to urge your support for Senator Stevens' PACFISH Amendment to the Senate version of the Interior and Related Agencies appropriations bill.

Extension of the PACFISH strategy to Alaska would be both a waste of environmental resources and an economic disaster to the residents of Southeast Alaska. Inclusion of Alaska within the strategy will reduce the timber land base by 40 - 50 percent, and result in a loss of more than 1,700 jobs, many in small, rural, native communities. Additionally, it would eliminate any possibility of a viable long-term industry in Southeast Alaska. The timber products industry currently accounts for more than 34 percent of the private economy of Southeast Alaska, and 24 percent of the overall basic industry of this region. Thus, implementation of the PACFISH proposal would jeopardize a forty-year federal policy of protecting jobs and maintaining community stability in the Tongass.

Thirty-four years of careful fisheries management by the State of Alaska provides the basis for Senator Stevens' amendment. Consider the following:

- There are over 2,500 known anadromous fish streams in Southeast Alaska;
- There are no threatened, endangered, or sensitive fish stocks in any of these streams;
- The few fish stocks (less than two dozen) that have shown declines of concern are not related to timber, but rather to a variety of issues;

- Declining fish stocks of concern exist within wilderness areas, non-timber management areas, and timber management areas;
- Most of the streams in Southeast Alaska remain in a pristine condition, with unaltered riparian zones;
- Commercial salmon catches are at historically high levels in Southeast Alaska.

With respect to fisheries/forest management, the Tongass National Forest is a leader in the Northwest. The Tongass Forest is managed through a network of overlapping federal and state laws and regulations unique amongst the national forests of the United States. Land uses, balancing of resource issues, and maximum timber harvest levels are established under the Tongass Land Management Plan. Any major policy modifications, such as the PACFISH proposal, should be considered in this planning process, rather than by means of unilateral forest service action. In addition, the Tongass National Forest is the only national forest with mandated minimum 100 foot buffers on all anadromous streams through the Tongass Timber Reform Act passed by Congress only three years ago. Further, the Tongass National Forest is unique in that it lies within the Alaska Coastal Zone and all timber harvesting and other activities must comply with the provisions of the State Coastal Zone Management Program as well as the newly implemented State Forest Practices Act. This overlapping federal/state regulatory network already achieves what PACFISH hopes to establish in the other Pacific Northwest states, and should be looked to as a model for achieving a balanced use of resources.

The cost to Alaskans will be very high to re-achieve environmental goals within PACFISH--goals that have already been attained through a combination of federal and state laws and regulations. Accordingly, I urge your support for Senator Stevens' amendment, so we can avert this environmental and economic disaster.

With best regards.

Sincerely,

Patrick P. Ryan

Patrick P. Ryan
Chief of Staff

cc: *Senator Ted Stevens*
Senator Frank Murkowski
Representative Don Young
Commissioner Carl Rosier
Commissioner Harry Noah
Mr. John Katz
Dr. Paul Rusanowski

Resource Development Council for Alaska, Inc.

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April 20, 1994

Representative Bill Williams
House of Representatives
State Capitol
Juneau, AK 99801-1182

Re: HJR 56 (RES)

Dear Rep. Williams:

RDC supports Joint Resolution 56, *"relating to an exemption for federal land in Alaska from the federal PACFISH management strategy."*

RDC is a statewide, membership-funded, non-profit pro-development organization working on behalf of Alaska's basic industries, including oil and gas, mining, timber, fishing and tourism. RDC's membership includes the aforementioned industries, as well as the sectors which support those industries, such as construction, labor and other technical service providers, individuals, Native corporations, communities and a wide variety of Alaska interests.

It is important to recognize that PACFISH is a fisheries protection plan developed for the Pacific Northwest fisheries problem. There is no need to apply the plan to the Tongass National Forest or other lands in Alaska since fish runs here are strong and stringent forest practices measures are in place. The Tongass is the only national forest with mandated buffer zones.

Timber harvesting in Alaska will not result in the wholesale clearcutting and destruction of our state and federal forests as some have claimed. All provisions of the Forest Practices Act, including fish habitat, water quality, buffer zone and best forest practices considerations apply to all lands.

PACFISH would triple the size of no-logging buffer zones along fish streams, lakes and wetlands, reducing annual timber harvests by as much as 60 percent in the Tongass.

The Tongass Timber Reform Act, along with the Alaska National Interest Lands Conservation Act of 1980 and a number of

administrative decrees have set aside over two-thirds of the commercial forested lands in the Tongass from logging of 5.7 million acres of commercially viable timber, less than two million acres are scheduled for logging on a 100-year cycle.

The wood products industry in the Tongass National Forest is a critical element of Southeast Alaska's economy. The industry accounts for over one-third of private basic industry employment and provides the highest paying and best year-round industrial jobs in the region. Further restrictions on timber harvesting would force residents and local communities to rely heavily on seasonal fishing and tourism. Those who want year-round jobs will have no choice but to leave or apply to the government for work.

Law, regulation, attitude, and the creation of Wilderness and other highly restrictive land withdrawals have greatly limited timber harvesting across Alaska. The result has been a very limited utilization of forest resources, while disease and insect attacks destroy wood, precluding beneficial uses. Natural mortality has, in many areas, surpassed growth.

RDC supports Joint Resolution 56 and encourages the U.S. Department of the Interior and the U.S. Department of Agriculture to permanently exclude PACFISH requirements from lands they manage in Alaska.

Sincerely,

RESOURCE DEVELOPMENT COUNCIL
for Alaska, Inc.

Becky L. Gay
Executive Director

Alaska Forest Association, Inc.

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TESTIMONY OF THE ALASKA FOREST ASSOCIATION
IN SUPPORT OF HOUSE JOINT RESOLUTION 55 AND 56
RELATING TO TIMBER SUPPLY FROM
AND THE IMPLEMENTATION OF THE PACFISH STRATEGY
ON THE TONGASS NATIONAL FOREST

BEFORE THE ALASKA STATE HOUSE RESOURCES COMMITTEE
REPRESENTATIVE BILL WILLIAMS, CHAIR
FEBRUARY 23, 1994

Thank you for the opportunity to be before this committee today to share with you the position of the Alaska Forest Association regarding HJR 55 and 56. AFA is a coalition of over 300 companies who depend on and/or support the development and management of Alaska's forest resources. AFA members believe the management of our forests, through intensive silvicultural practices, will result in better jobs, communities and environment.

AFA is in support of HJR 55 and 56. While these two resolutions are interconnected, they have important differences which I would like to highlight.

There is currently a timber supply crisis on the Tongass National Forest for those who depend upon it for its raw material source. This timber supply shortage is not due to a biological shortage of trees, but rather a political shortage. Only 10% of the Tongass National Forest will ever be accessed for the management of timber. The remaining 90% is protected in wilderness or other administrative set asides.

Many would lead you to believe that the Tongass National Forest is being managed beyond a sustainable level; that if harvesting is left to continue at present rates, it will run dry in the next decade. Nothing could be farther from the truth. In the last decade, harvest levels from the Tongass National Forest have never been funded at a level over 450 mmbf/year. Since the passage of the Tongass Timber Reform Act, funding has not exceeded 420 mmbf/yr. These levels are far below the over one billion board feet which could be biologically produced from these lands or the over 500 mmbf called for in Governor Hickel's sustainable preferred alternative.

I have only been in Alaska since August of 1993. Having been a professional forester for the last 10 years, I have learned not to believe anything told to me by the professional preservation groups. However, I had heard a lot about Prince of Wales Island and the Tongass National Forest from these groups. I am not sure what I expected to see when I came here but what I saw was trees, trees and more trees. The Tongass National Forest is nothing but trees. Since the coming of settlers, only a small fraction of the Tongass has ever been harvested.

The federal government made a commitment to the communities of SE Alaska that the Tongass National Forest would be managed to produce year around jobs in the region. People brought their families and dreams to Alaska with this promise in mind. This promise was reaffirmed by Congress most recently in the Tongass Timber Reform Act of 1990. In that legislation, Congress created even more wilderness on the Tongass and in addition directed the Forest Service to supply the existing industry through what is now known as the "seek to meet" language.

AFA recently filed suit against the Forest Service for failure to meet this requirement. The organization filed this lawsuit mainly because the Forest Service has failed to meet the independent sale program requirements given it by Congress. Since the passage of TTRA, the lack of timber supply to this segment of the industry has resulted in the closure of several sawmills and logging companies in the Tongass region.

In each year since passage of TTRA, Congress has provided the Forest Service with funds to harvest 420 mmbf of timber. In each of those years, the Forest Service has only made slightly over 300 mmbf available. This 120 mmbf shortfall has meant mills closing and being unable to reopen. AFA does not believe this is what Congress intended through its "seek to meet" language.

The manner in which we manage our forests also has an impact on Alaska's other important renewable natural resource industry--fishing. AFA believes and the science bares out that we can manage for both a significant forest products industry and a large scale fishing industry. However, to do so we must all realize that the forest products and fishing industry have more in common than they have differences.

Next to me is just a sample of the science and research which clearly shows that timber harvesting and fisheries are compatible. Statistics from the ADF&G show that fisheries production has increased at the same time timber harvesting has increased. While we do not pretend to claim there is a direct relationship between these two activities, the evidence does show that both are occurring and compatible.

Last spring the federal government developed the PACFISH strategy to address the fisheries crisis in the Pacific Northwest. With no research or evidence, the Forest Service and BLM made the decision that Alaska should be included in the strategy.

It has been well documented through the Forest Service and the media, that the PACFISH strategy would effectively reduce timber harvesting on the Tongass National Forest by 50%-85%. This would mean the loss of jobs, family incomes and damage to the social fabric of the region. All this would occur with no evidence to support the decision.

Not only should the proposal be of concern to the forest products industry, but it should also concern the fishing industry. The PACFISH strategy deals with what are know as the four H's. These are Harvesting, Hatcheries, Hydro-development and Habitat. Not only is the federal government attempting to reduce timber harvest through the PACFISH strategy, but also they are on the path to controlling offshore fish harvest and our successful hatchery programs.

Last year the Alaska Congressional delegation lead by Senator Ted Stevens stopped implementation of the PACFISH proposal thorough the Interior Appropriations Bill. This effort was successful for several reasons.

First, was the fact that the science was on our side. There is no evidence that fish stocks in this region are at risk due to timber harvesting. The State, through Dr. Rusanowski at DEC, made this point very effectively.

Second, was the passage of TTRA. The Tongass is the only national forest in the system which has legislatively mandated 100 foot, no harvest, stream buffers. Alaska has already addressed the habitat issues on public lands and is doing so effectively. A recent forest service report on the southern Tongass shows that stream buffer implementation was meeting the letter of the law with few exceptions. The report found that the average buffer width is 169 feet.

Third, was the progressive and state-of-the-art Alaska Forest Practices Act. Alaska is one of the leaders in implementing stream buffers on private and state lands. The FPA has set the standard for protecting fisheries and allowing private landowners to maximize the return on their investment.

Recently there were concerns raised over the implementation of the FPA stream buffer regulations on private lands which allows for timber harvesting within the buffers as long as no significant harm will result to fisheries values. Since these concerns were raised by the ADF&G, several important events have occurred which should certainly lay any fears to

rest. These activities have included three separate biological reviews of stream buffer implementation, an on-site visitation by the Commissioners of DNR and ADF&G to review stream buffer implementation and review of stream buffer implementation on the ownerships of major private landowners.

Each of these events produced the opinion and evidence that the FPA on private lands is working to protect fisheries values. This was good news to the forest products industry. We are committed to a strong Forest Practices Act which gives the public assurance that their resources are being protected.

But AFA and the forest products industry are not stopping there. We are currently in the process of designing and implementing the continuation of our past fish/forest research efforts. We are committed to finding answers and having the data to prove and insure that our forest practices protect fisheries values.

HJR 55 and 56 are important statements of state policy in regards to the management of our natural resources. AFA hopes this testimony has summarized our commitment and belief that our forests, fish, wildlife and communities can be managed for the benefit of all. We strongly urge you to pass these resolutions.

House Economic Task Force

Chair:
Rep. Eileen Panigeo MacLean
Vice-Chair:
Rep. Jeannette James

Members:
Rep. Bettye Davis
Rep. Joe Green
Rep. Bill Hudson
Rep. Jerry Mackie
Rep. Carl Moses
Rep. Al Vezey
Rep. Bill Williams

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SPONSOR STATEMENT FOR HJR 56, RELATING TO AN EXEMPTION FOR FEDERAL LANDS IN ALASKA FROM THE FEDERAL "PACFISH" MANAGEMENT STRATEGY

prepared for the House Economic Task Force
by Rep. William K. Williams, chair, Timber Working Group

House Joint Resolution 56 asks the USDA Forest Service and the U.S. Dept. of the Interior, Bureau of Land Management (BLM), to permanently exclude lands they manage in Alaska from the requirements of the federal management strategy for anadromous fish watersheds and habitats dubbed "PACFISH." This fisheries management strategy is aimed at repairing habitat degradation and addressing the decline in anadromous fish stocks that has occurred in Washington, Oregon, Idaho and California. U. S. Senator Ted Stevens was able to obtain a temporary exemption for Alaska from the provisions of PACFISH. The exemption is slated to expire in October 1994.

The State of Alaska is working to persuade the BLM and the USDA Forest Service to grant Alaska lands managed by those agencies a permanent exemption from the PACFISH provision. Alaska's anadromous fish stocks are healthy, Alaska does not share the habitat degradation problems faced by the other Northwest states, and anadromous fish stocks in Alaska are protected by existing federal and state laws and regulations including the Tongass Land Management Plan, the Tongass Timber Reform Act, the Alaska Coastal Zone Management Program and the Alaska State Forest Practices Act.

Implementation of PACFISH in Alaska is unecessary and inappropriate. It would cut the timber land base nearly in half, resulting in a waste of timber resources which can be harvested without environmental harm. The loss of direct and indirect forest products industry employment would create economic hardship for thousands of Alaskans, and eliminate chances of a long-term forest products industry in Southeast Alaska. The Alaska State Legislature has an opportunity in HJR 56 to express strong support of federal action to grant Alaska a permanent exemption from PACFISH provisions.

WALTER J. HICKEL
GOVERNOR

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

POSITION PAPER

APPLICATION OF PACFISH STRATEGY TO ALASKA

AUGUST 1993

SUMMARY

Application of the PACFISH strategy to Alaska by the Forest Service and BLM is unneeded because of the healthy status of anadromous Pacific salmonids in Alaska resulting from sound harvest and hatchery management, proactive riparian management since 1990, and a conservative approach to development. Alaska has a management strategy in place, based on the Tongass Timber Reform Act (TTRA) and the Forest Practices Act (FPA) and other statutes and regulations to effectively manage riparian areas and establish both minimum and appropriate buffers on all lands. A primary focus of both TTRA and the FPA was to ensure protection of anadromous fisheries in the State.

As Assistant Secretary Lyons stated at the "Creating a Forestry for the 21st Century" decisions must be based on sound science and best available information -we cannot assume that one size fits all, and we must recognize expertise of managers on the ground- without these things Washington, D.C. management decisions are doomed to failure. In contrast to the Pacific Northwest, Alaska has developed an effective fisheries protection, management and enhancement program that has resulted in fish stocks at historic high levels.

Until need can be demonstrated through effectiveness monitoring of the present program, or watershed-specific analyses are conducted, additional/enlarged RHCAs and other elements of PACFISH are not warranted or appropriate for environmentally responsible management of the Tongass National Forest.

BACKGROUND

The PACFISH strategy is being developed by the USDA Forest Service (Forest Service) and the US Bureau of Land Management (BLM) due to the poor status of most stocks of Pacific anadromous salmonids returning to California, Idaho, Oregon, and Washington. A recent survey by the American Fisheries Society (AFS) found that of the 440 naturally reproducing stocks of anadromous salmonids indigenous to these four states, only about 27% of the stocks were considered "secure"; whereas, the remaining stocks were either already extinct (24%); or were considered to be at a moderate to high risk of extinction or were of "special concern" (49%).

Since the AFS report was released, the National Marine Fisheries Service (NMFS) has utilized provisions of the US Endangered Species Act to list one of these stocks as endangered and two of these stocks as threatened. Further, the NMFS is currently considering petitions to list additional stocks as threatened or endangered. The widespread decline of anadromous Pacific salmonid stocks in California, Idaho, Oregon, and Washington is generally considered to be due to a combination of: (1) hydroelectric developments and operations; (2) overharvests in fisheries; (3) hatchery operations and management and their effects on genetic fitness and disease; and (4) habitat conditions needed for freshwater spawning and rearing. These four factors are referred to as the four H's.

Development in California, Idaho, Oregon, and Washington led to widespread hydroelectric activities in almost all stream and river systems important to anadromous salmonids. As a result, fishways and hatcheries were developed as mitigation measures. In many cases, fishways have not succeeded in passing fish unharmed and hatchery operations have not utilized sufficiently strong disease and genetics policies and practices. Commercial, tribal, and recreational harvest controls are complex due to numerous overlapping federal and state jurisdictional authorities. Further, these authorities traditionally demonstrated a general lack of adequate protection for wild stocks which led to long term overharvests of many anadromous salmonid stocks.

Land development activities in these four states has led to widespread loss of both the amount and quality of riparian and instream habitat which is vitally important for freshwater spawning and rearing of anadromous Pacific salmonids. The PACFISH strategy being developed by the Forest Service and BLM primarily aims at addressing the habitat aspect of the problem on Forest Service and BLM lands by implementing policies that will prevent further degradation of riparian and instream habitat and that will partially restore previously damaged habitat as an aid to recovery of Pacific anadromous

TONGASS VERSUS NORTHWEST FORESTS

The Tongass National Forest is physiographically distinct from the Pacific Northwest forest lands. In contrast to the Pacific Northwest, the Tongass is characterized by steep slopes; deep narrow, fjords; deeply incised, short valleys; small watersheds, with few large river systems; and isolation from other areas as a result of the island archipelago nature of most of the lands juxtaposed to a mainland mountain range dominated by ice fields and glaciers. Most of these features are illustrated in figures 1 and 2 from the Chatham district, showing a narrow fiord with forested uplands (Ushk Bay), and a forested, U-shaped glacial valley. The effect of this physiography on commercial timber capabilities is best illustrated by direct comparison of the Tongass National Forest to one in the Pacific Northwest. A schematic comparison of the Tongass National Forest to the Willamette National Forest in Oregon is shown in figure 3. Key features shown by this comparison are:

- On a percentage basis, there is 2.8 times the productive forest land in the Willamette as compared to the Tongass:
- The Willamette is approximately 1/10th the size of the Tongass; however 10% of the Willamette is comprised of non-forest lands, as compared to 41% non-forest lands on the Tongass;
- The productive timber lands extend over 6500 vertical feet in the Willamette as compared to 2500 feet for the Tongass;
- There are more commercial species on the Willamette compared to the Tongass; and
- The value of commercial species on the Willamette far exceeds that of species on the Tongass.

These two forests can also be compared on a land suitability basis. Land suitability classifications are shown for both forests in figure 4. All categories show major differences between both forests, which would indicate that uniform management practices applied to both forests would have different environmental and economic consequences due to these differences. When combined with other features shown in figure 3 these features illustrate that forest management practices implemented in the Pacific Northwest will have a different effect on the forest industry there than in Alaska. This is primarily due to the economic margin resulting from physiographic and species differences, market constraints and timber sale costs. With a net sawlog value of $348/mbf there is plenty of room to modify management strategies and maintain positive cash flow timber sales. However, when the net sawlog value

Effects of TTRA and ANILCA on the Forested and NonForested Land Base

(16.97 MM Acres)

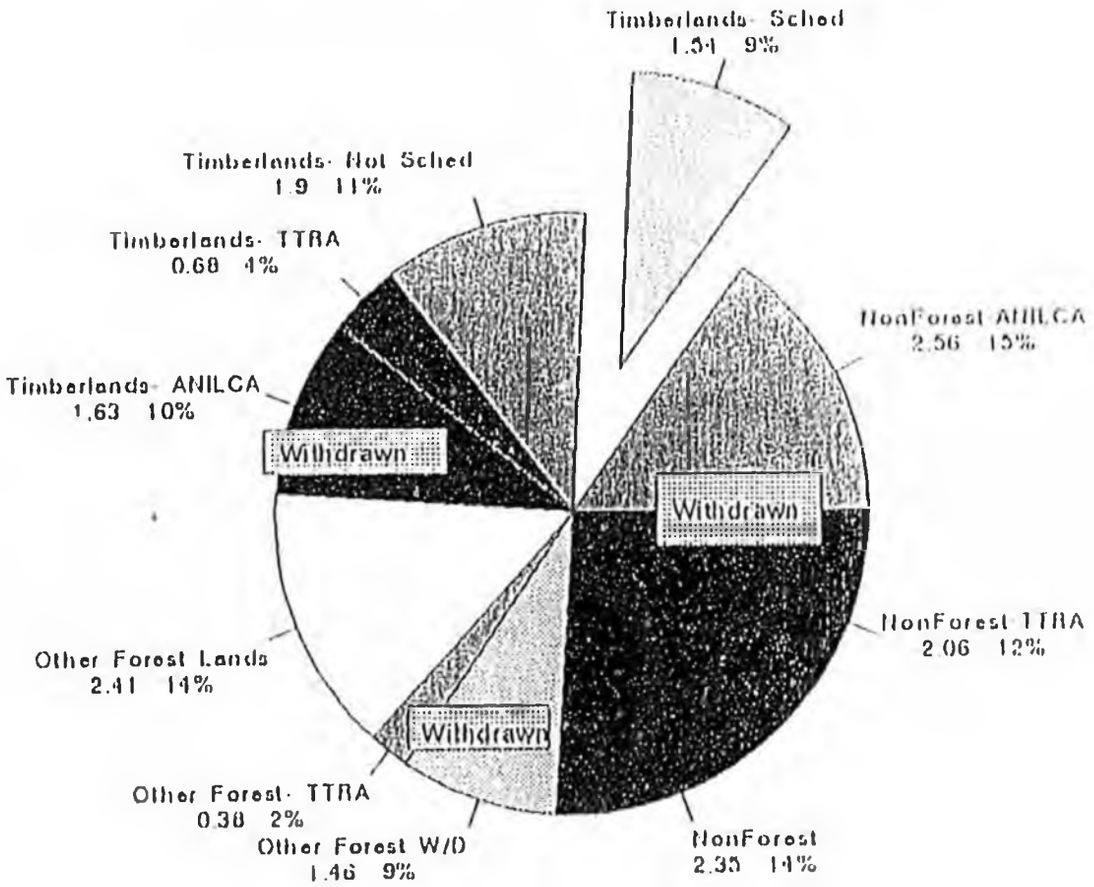
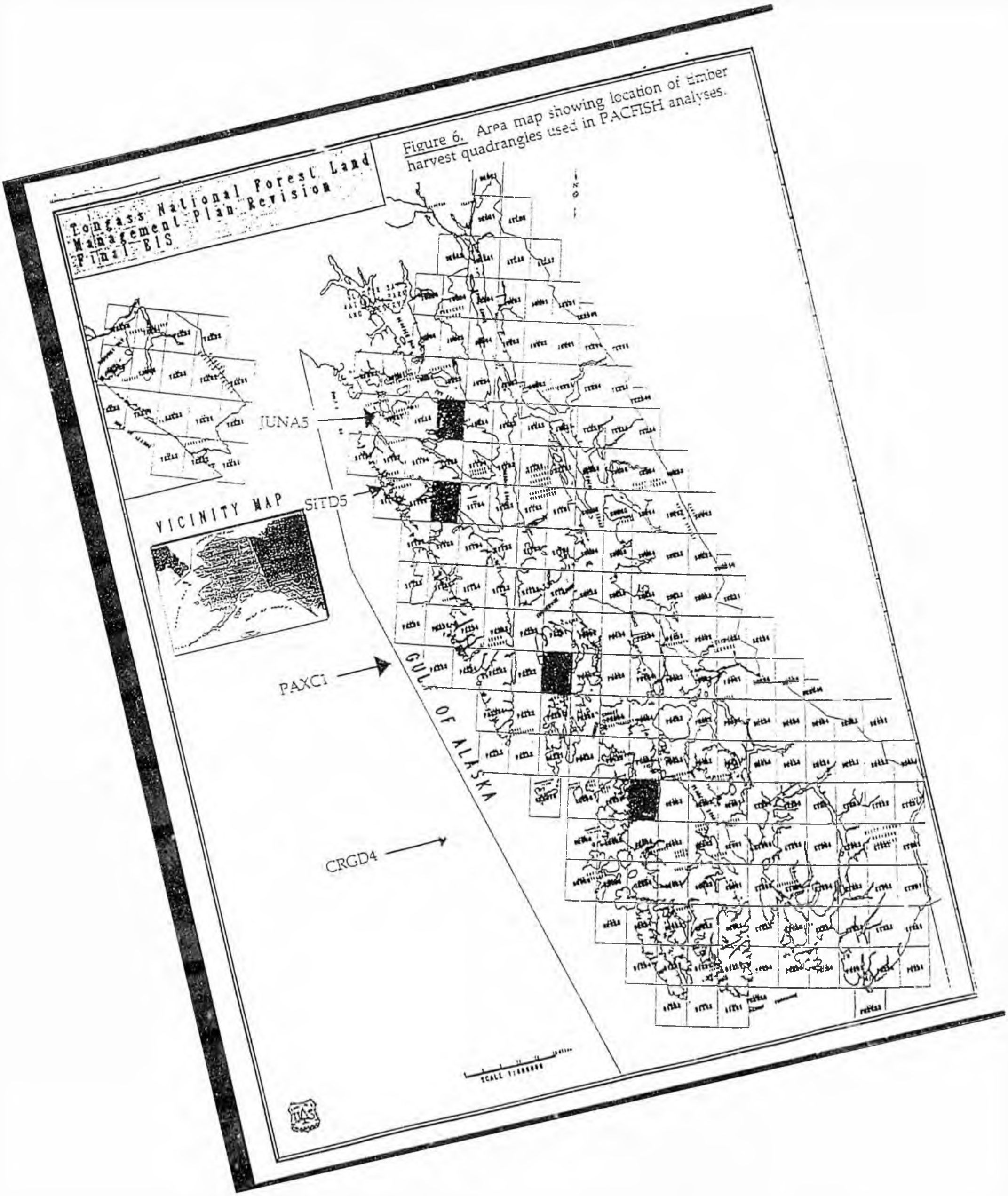


Figure 5

Figure 6. Area map showing location of timber harvest quadrangles used in PACFISH analyses.



Map 1. Kuiu Island quadrangle PACX1 showing tentatively suitable timber base (gold) and stream buffers.

Map 2. Kuiu Island quadrangle PAXC1 showing PACFISH designated buffers. Gray areas are previously harvested units.

is marginal, as is the case on the tongass ($2/mbf) then small changes in management or planning decisions quickly push timber sales into a below cost sale category. In 1989 the total revenues from the Willamette and Tongass National Forests were 167 and 21 million, respectively. However costs were 47 million on the Willamette and 15 million on the Tongass; resulting in net receipts to the federal treasury of 120 and 6 million, respectively. Any change in timber supply or sale costs will quickly erode the limited economic potential of the Tongass National forest.

The Tongass National Forest has also experienced recent changes in the available timber supply due to Congressional action. The effects of both TTRA and ANILCA legislation on the forested and non-forested lands of the Tongass National Forest are shown in figure 5. The TTRA legislation dealt specifically with protection of riparian and fisheries habitat on the Tongass, while ANILCA established numerous wilderness and special management status lands. TTRA resulted in reclassifying 18% of the Tongass National Forest to uses other than commercial timber extraction, while ANILCA resulted in reclassifying 25% of the Tongass lands to other status designations. At present only 20% of the Tongass is open to commercial timber harvest, [tentatively suitable] of which 9% [suitable/available] has actually been scheduled for harvest.

EFFECTS OF PACFISH ON THE TONGASS NATIONAL FOREST

The effects of PACFISH on timber harvests, and ultimately the economy of Southeast Alaska, is quite striking when compared to the present timber management program on the Tongass. the effect of PACFISH on both tentatively suitable (has commercial timber) and suitable/available (part of the planned rotation cut) forest lands is shown in Table 1. Data is presented for a single quadrangle from Kuiu Island, and for a 4 quadrangle average to represent the Tongass Forest. Locations of these quadrangles in the Tongass forest is shown in figure 6. In both cases, roughly a 45% reduction in timber supply can be expected. The actual effects of PACFISH on timber supply is shown on maps 1 and 2 for PAXC1. On map 1 the planned timber base is shown in gold, with TTRA buffers shown in green and blue. Map 2 illustrates the same quadrangle with the buffers created by PACFISH, shown in green, orange, blue, and black; gray depicts areas already harvested. Not only is the timber base reduced by 45%, but the remaining forest is fragmented in a manner that would substantially increase conventional logging costs. The immediate effect of this would be to increase the costs of road building and increase the miles of road need to access timber, i.e., building more roads for

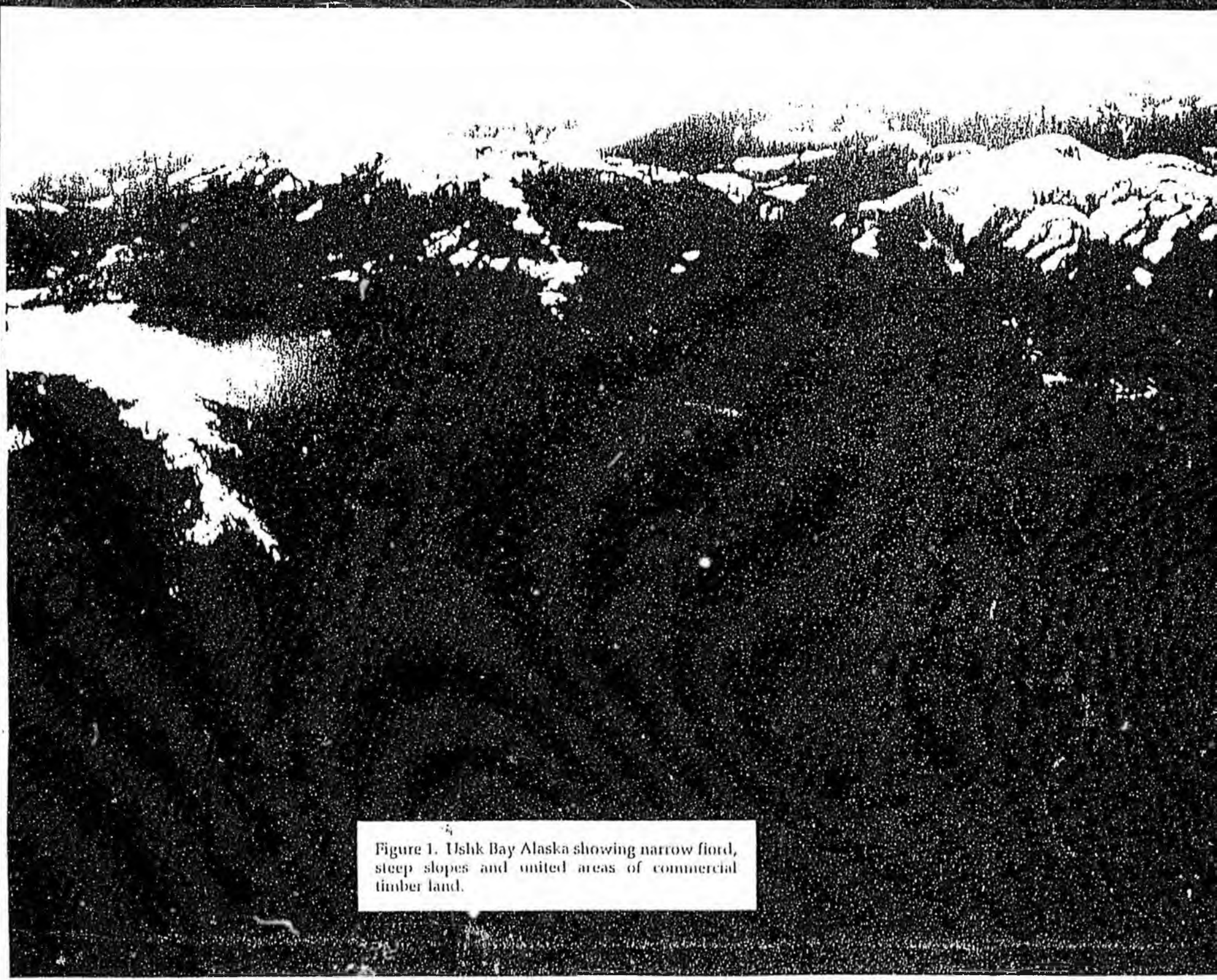


Figure 1. Ushk Bay Alaska showing narrow fiord, steep slopes and united areas of commercial timber land.

Figure 2. Forested U-shaped valley in Chatham district.

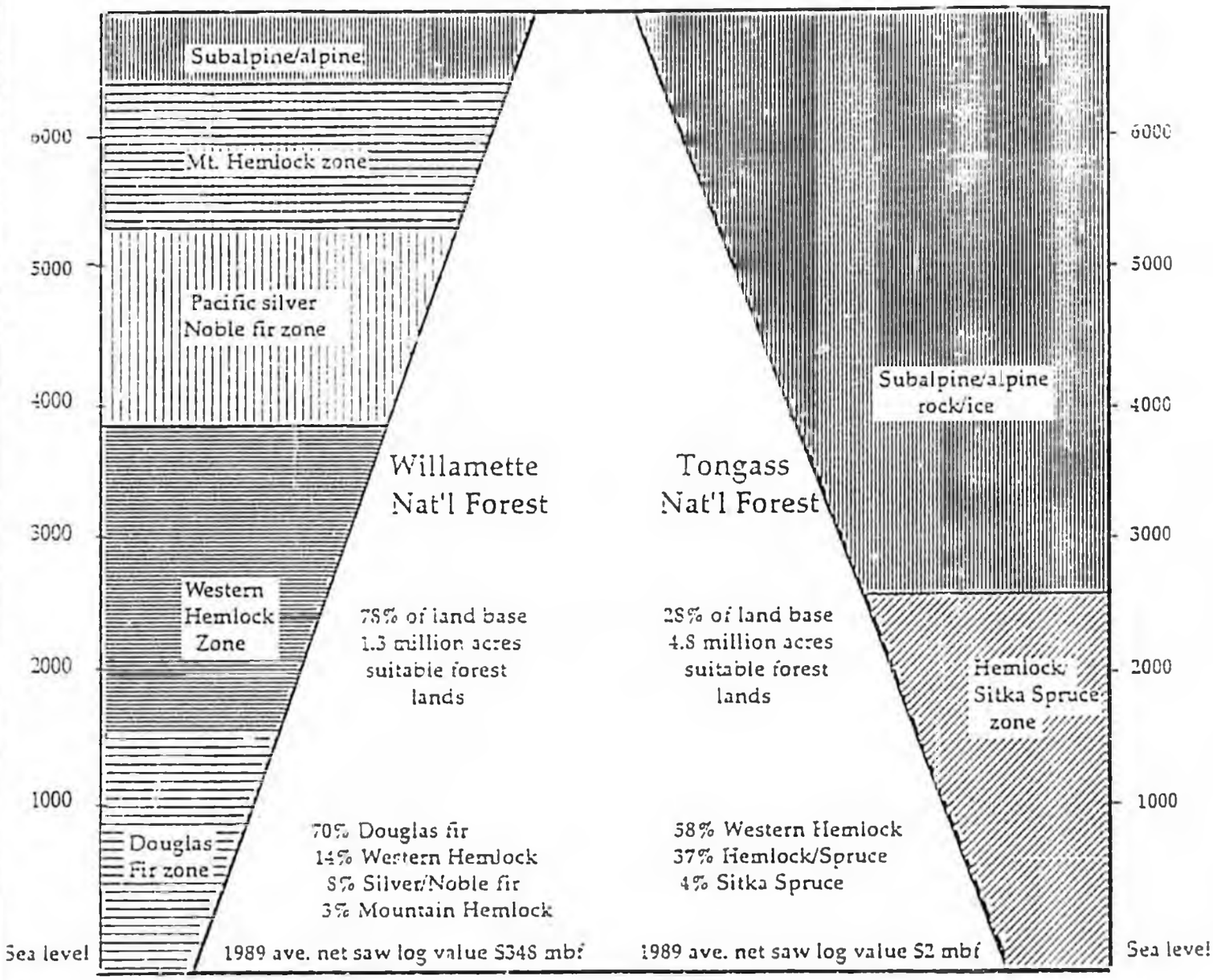


Figure 3. SCHEMATIC COMPARISON OF VERTICAL DISTRIBUTION AND COMPOSITION OF SUITABLE FOREST LANDS IN THE WILLAMETTE (Oregon) AND TONGASS (Alaska) NATIONAL FORESTS

Comparison of Land Suitability Classifications

Willamette and Tongass National Forests

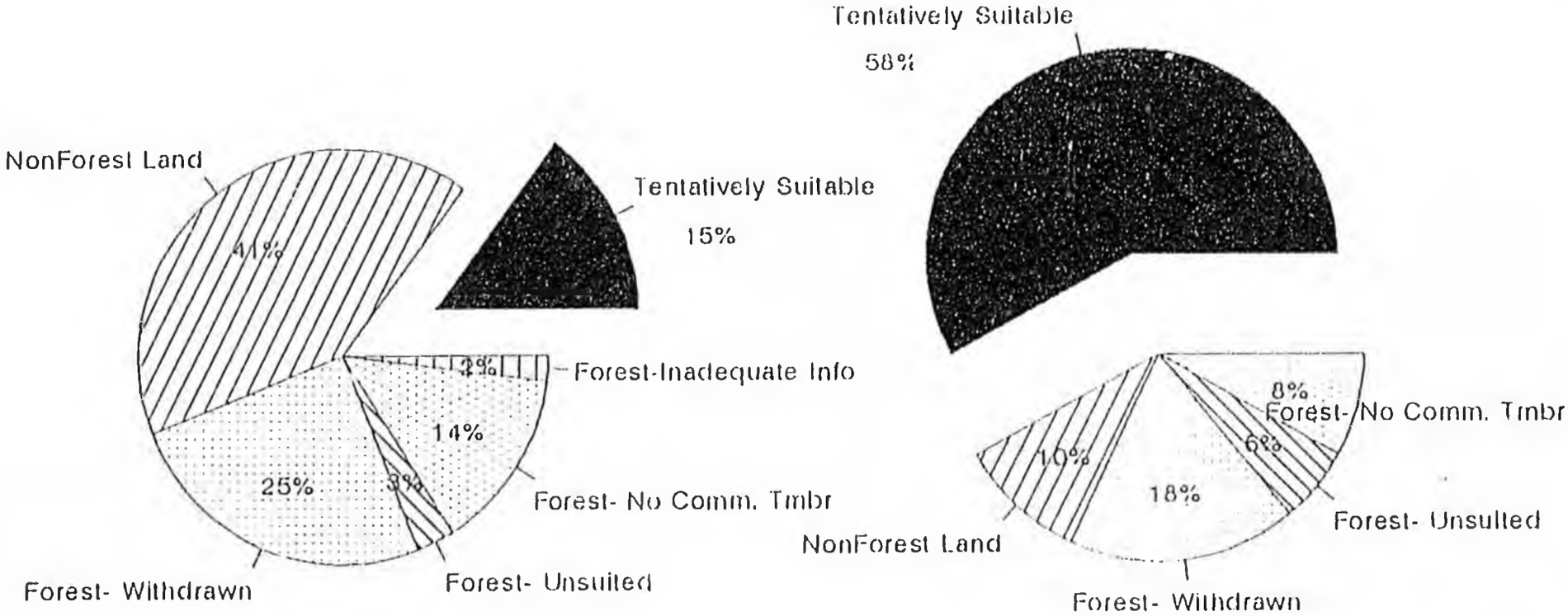


Figure 4

less timber. Present planning guidelines for the Tongass provide for approximately 2 million board feet of timber per mile of road. Under PACFISH this would drop to 0.5-1.5 million available board feet per mile of road estimated to access the timber. This impact would make it extremely difficult to avoid below cost timber sales on the Tongass.

TABLE 1: Effects of PACFISH on harvestable timberlands on the Tongass National Forest

Timberlands	NET Tentatively Suitable Timberlands			Suitable and Available		
Land Unit	*Pre-PF	*Post-PF	% Change	*Pre-PF	*Post-PF	% Change
PAXCI	44,795	25,683	43	24,827	13,419	46
Tongass 4 Quad Ave.	40,150	22,211	45	30,070	16,804	44

* Acres PF=PACFISH

An additional feature of the PACFISH program is that road design standards are upgraded to 100 year flood events for culverts and bridges. This is retroactive to existing roads. Present design criteria for the Tongass are 50 year events for bridges and 25 years for culverts, with an 18 inch minimum culvert size. The cost to retrofit existing roads is estimated to be $100,000 per mile, while the additional cost for new construction to the 100 year flood standard is $50,000 per mile.

An associated effect of implementing PACFISH is that the total [suitable/available] Tongass timber base would drop approximately 45% from 1.9 million acres currently in the available timber base to 0.95-1.14 million acres. This would only support an annual harvest of less than 200 million board feet per year on a sustained yield basis. Such annual harvest rates would immediately impact both pulp mills and the existing sawlog industry in the State. At present 52% of the logs off the Tongass are suitable only for the pulp mills. of the remaining timber, 11% is exported, and 37% is milled. Waste from milling operations provides an additional 21% of the timber supply to the pulp mills.

TONGASS SALMONID FISHERIES

The Alaskan situation with regard to anadromous Pacific salmonids is entirely different than is the case in California, Idaho, Oregon, and Washington. The status of Alaskan stocks of anadromous Pacific salmonids is most generally strong and healthy. None of the thousands of stocks of anadromous Pacific salmonids in Alaska are listed as threatened or endangered, none of the stocks are considered extinct, and none of the stocks

are yet classified as of "special concern. " Rather, all of these stocks are at this time considered "secure." In recent years there has been an apparent decline in steelhead stocks throughout their range. This decline has been attributed primarily to high seas fishery impacts. There are also two salmon stocks listed as sensitive by the U.S.Forest Service, the Hyder chums and the Island chinooks. The Hyder chum fishery is under international treaty regulation and is not impacted by logging in Southeast Alaska. The Island chinook run is a unique king salmon run of special interest to the State, and is located within a watershed that is totally protected from logging activities.

Major timber harvests in Southeast Alaska have taken place, predominantly using clearcutting as a harvest method, since the early 1950's. Large scale conversion to second growth, now on the decline due to a variety of reasons including withdrawal of land from multiple use by TTRA. Alaska commercial salmon harvests for Southeast are shown in figures 7 and 8, while timber harvest for the last 10 years are shown in figure 9 and exhibit no direct relationship. Fish returns are dynamic, with record runs for one fishery or another common, with no recorded or perceived correlation between runs and timber harvest. That is true for tests against any annual timber harvest and for any aggregation of timber harvests. This is in contrast to the relationship shown in figure 10 for the Alaska fishery enhancement program, which correlates with increased commercial catches since its inception.

In many areas, roads, required and constructed by timber harvests, have enabled dispersion of sport and subsistence fishing effort. Fishing communities scattered throughout the region enjoy and depend on federal timber dollars.

The situation with regard to the four H's is also entirely different in Alaska. Very few hydroelectric facilities have been developed in Alaska; those that have been developed have not been situated on streams with major anadromous salmonid runs- as a result, impacts of hydroelectric facilities and operations on stock status of anadromous Pacific salmonids in Alaska has been and continues to be nil.

Hatcheries have been developed in Alaska to enhance fisheries rather than as mitigation efforts. The state has used an estimated $300,000,000 of predominantly petroleum royalty and tax dollars to enhance fisheries, chiefly through hatcheries. Additionally, the state spends $97.97 per capita managing its fisheries. Strong policies were and continue to be implemented by the State of Alaska to prevent potential transfer of diseases and to prevent detrimental genetic impacts from resulting from Alaska hatcheries.

Harvests of anadromous Pacific salmonids in Alaska is almost entirely

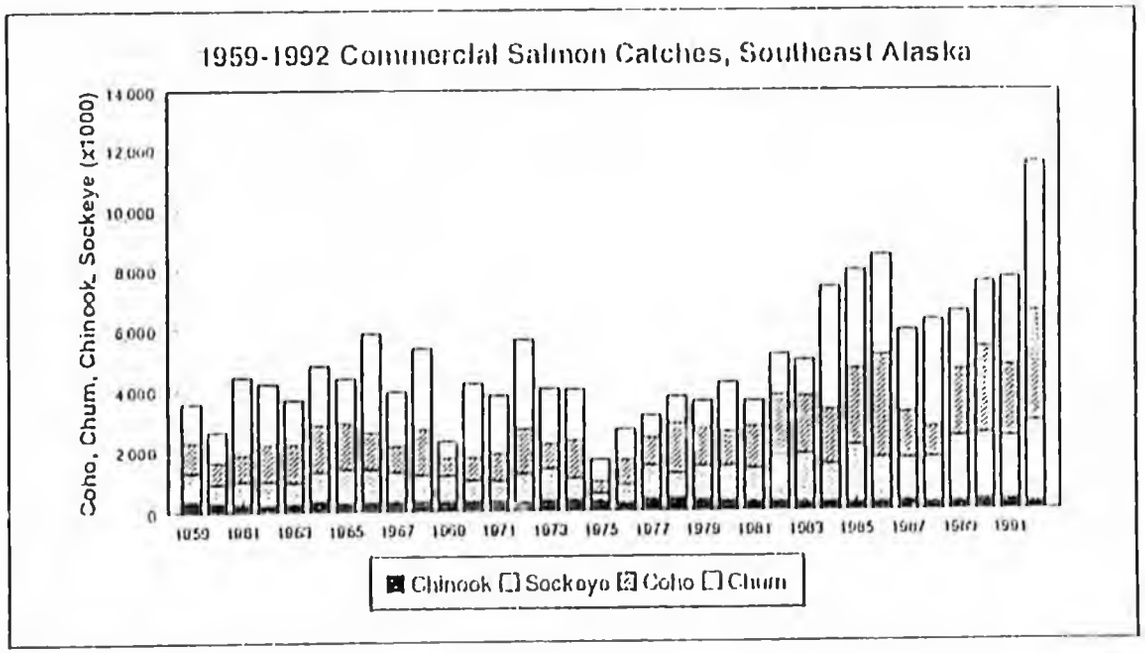


FIGURE 7

1959salm.cgm
1959salm.pcx

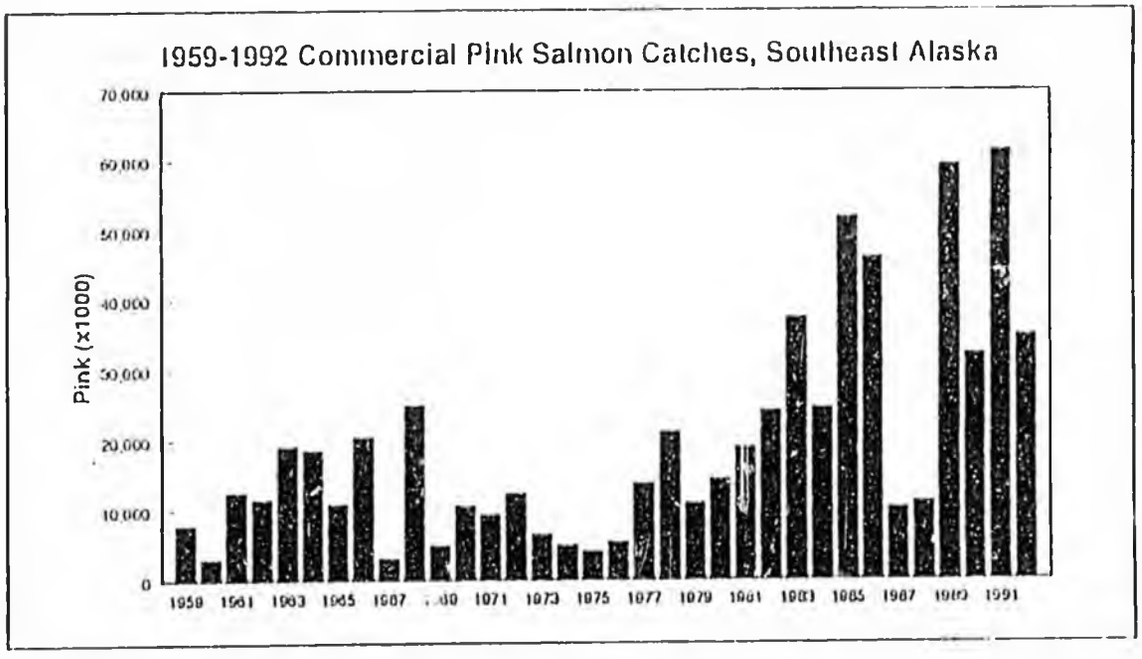


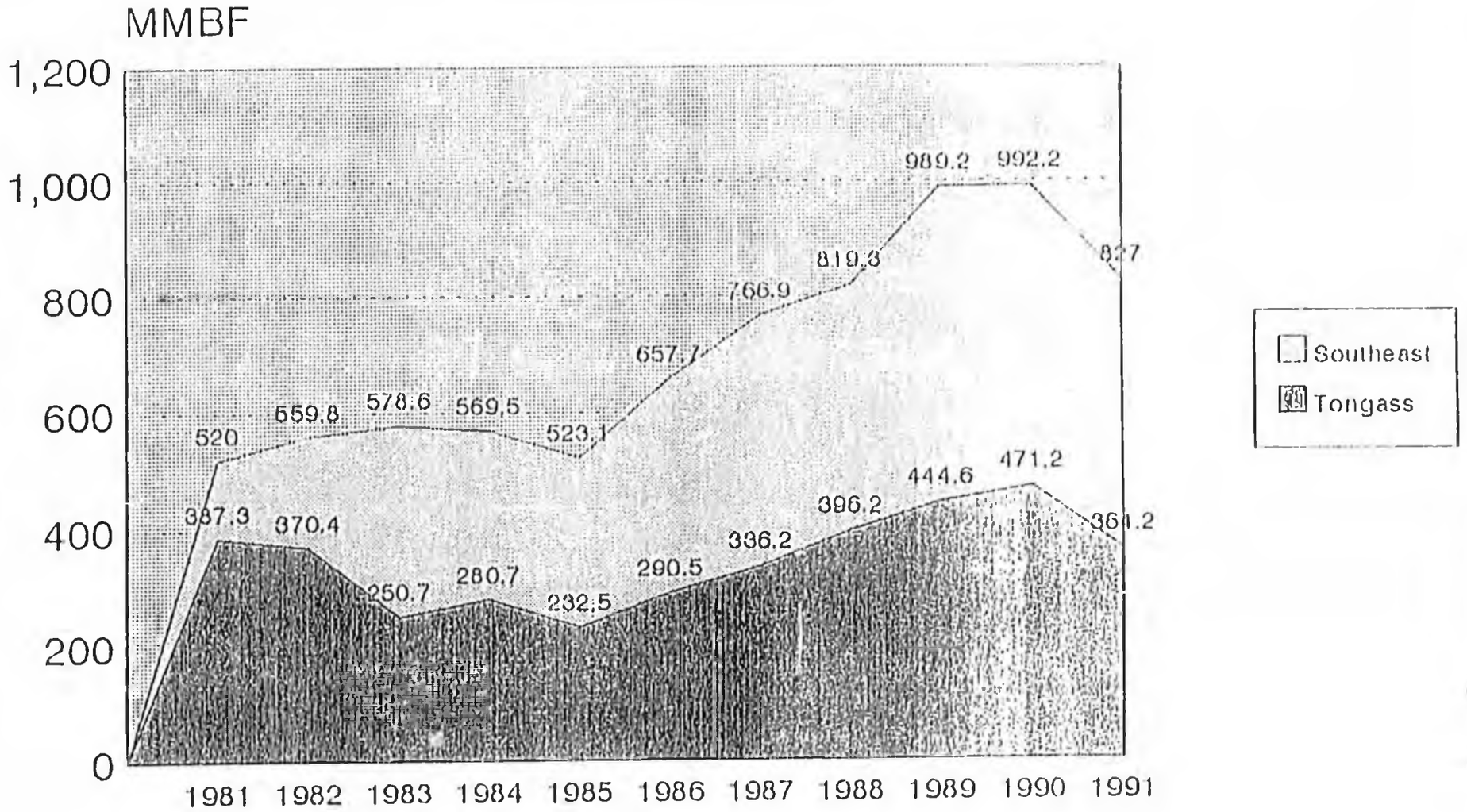
FIGURE 8

1959pink.cgm
1959pink.pcx

Comparison of Timber Harvest

Southeast Alaska and Tongass National Forest

Figure 9



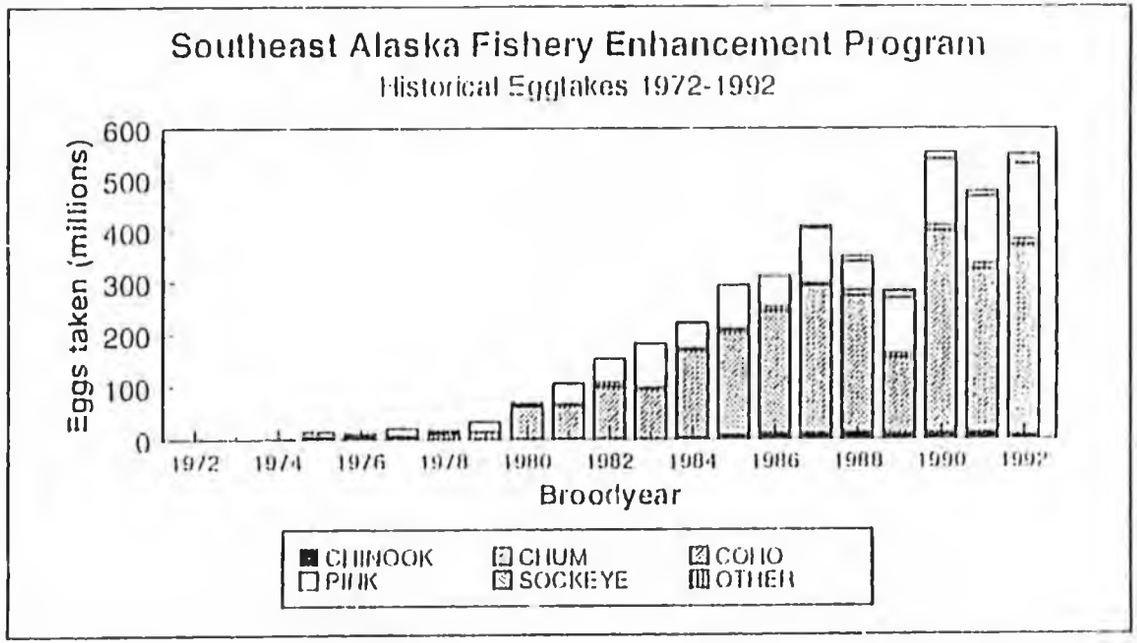


FIGURE 10

enhance.cgm
enhance.pcx

regulated by the Alaska Department of Fish and Game, (ADFG) and the Alaska Board of Fisheries (BOF) although some coordination occurs with various Federal entities. Management includes commercial, sport and subsistence fisheries, as well as habitat. The Alaska Constitution requires that fisheries be managed for sustained yield and that mandate has been interpreted by both ADFG and the BOF to apply on a priority basis to wild stocks even when that results in under-harvests of surplus hatchery stocks. Since Statehood, emergency order authority of local ADFG fishery managers to alter fishing areas and seasons has ensured healthy stocks of anadromous Pacific salmonids. Such management authority and action was shown most recently in Southeast Alaska when both catch and gear restrictions were imposed on an emergency basis to ensure that chinook sport harvest levels remained within quota limits established by the BOF. Monitoring of the sport harvest, and projections of catch to the end of season, prompted this proactive management decision. As a result of the Constitutional mandate and the direct jurisdictional authority in Alaska, harvests of anadromous Pacific salmonids have been at record levels and yet spawning requirements have been met resulting in strong and healthy runs of almost all stocks.

RIPARIAN AND INSTREAM HABITAT PROTECTION ON THE TONGASS

The instream and riparian habitat of the majority of streams in Alaska that lie outside of communities is in pristine condition. However, areas logged on state and private land prior to May 1990, when the Alaska Forest Resources and Practices Act (FPA) was revised, and areas logged on the Tongass National Forest prior to the Tongass Timber Reform Act (TTRA) of 1990, did not receive the level of fish habitat protection that experts now know is needed. For example, some freshwater systems in southeast Alaska have been impaired due to past logging practices that included clearcutting to the stream bank and retaining inadequate buffers along streams. Effects of these practices included blowdown of forested stream buffers, increased temperature in temperature-sensitive watersheds that were heavily clearcut, and sedimentation of streams due to extensive networks of unpaved roads in a watershed.

In response to the growing awareness of the adverse impacts timber harvest can have on sustained yields of anadromous and resident freshwater fish important for commercial, sport and subsistence fisheries, as well as to many species of wildlife, the State of Alaska took the initiative in 1989 to strengthen the State FPA. The Alaska Legislature revised the FPA in 1990 based on recommendations resulting from lengthy negotiations between state and federal resource agencies, environmentalists, fisheries groups, tourism groups, and the timber industry. The FPA requires that logging on federal land in Alaska protect fish and wildlife resources by implementing the following standards, among others, under the Alaska Coastal Management Program

(ACMP). The FPA is one of the standards of the federally approved ACMP and thus requires that federal actions be consistent with State law and regulations.

Since 1990, with regulation of riparian areas under the TTRA, ACMP, and the FPA, fish habitat on the Tongass National Forest has been protected both through forest-wide requirements and through the ability to require additional protection due to site-specific conditions, as follows:

1) Harvest of timber may not occur within 100 feet from the shore or bank of an anadromous or high value resident fish waterbody (except where variations to this standard are approved by the Alaska Department of Natural Resources (DNR), with due deference given to the Alaska Department of Fish and Game (ADF&G)); (ACMP/FPA)

"High value resident fish" means resident fish populations that are used for recreational, personal use, commercial, or subsistence purposes.

2) Forest land shall be administered for the multiple use and sustained yield of the renewable resources of the land in the manner that best provides for the present needs and preserves the future options of the people of the state;(ACMP/FPA)

3) There may not be significant impairment of the productivity of the land and water with respect to renewable resources;(ACMP/FPA)

4) Allowance must be made for important fish and wildlife habitat.(ACMP/FPA)

5) Commercial timber harvest is prohibited within 100 feet of Class I streams or resident fish streams that flow directly into Class I streams (TTRA). (Class I is defined as anadromous fish streams or streams that could become anadromous fish habitat through enhancement.)

6) Timber harvest between 100 and 300 feet from an anadromous or high value resident fish waterbody may occur but must be consistent with the maintenance of important fish and wildlife habitat. This provision of the FPA may be applied to federal lands where data indicates this provision is needed if logging on federal land is to be consistent with the ACMP (ACMP/FPA).

7) Best management practices must be followed to control non-point source pollution of any waters, including those without fish (ACMP/FPA).

8) Additional protection for fish habitat may be required on federal land through the adoption of a forest plan or a coastal district management plan (ACMP). For example, the 1991 draft revision of the Tongass Forest Plan would not allow programmed commercial timber harvest within 100 to 200 feet from certain types of low-gradient floodplain rivers and estuarine channels, or within 100 to 500 feet of certain types of estuarine channels. It would also recommend 269 miles of Wild and Scenic River designation by Congress along which timber harvest would be prohibited within 1/4 mile of the river.

The state resource agencies are also able to condition the design of timber harvest support activities, including log transfer and sort yards, under the ACMP review process. For example, the ACMP standards generally do not allow dredge-and-fill operations to disrupt the movement of fish in a waterbody; offshore marine areas must be managed as a fisheries conservation zone; and wetlands and tideflats must be managed so as to assure adequate water flow, nutrients and oxygen levels and to avoid adverse effects on natural drainage patterns, the destruction of important habitat and the discharge of toxic substances.

The ADF&G has diligently pursued the protection of fish habitat on the Tongass National Forest through the revision of the Tongass Forest Plan. The department rejected the validity of the models initially proposed by the Forest Service (FS) to predict the effects of future logging and roading on fish production. The department also objected to the FS stating in public documents that increased harvests of salmon correlated with increased timber harvests on the Tongass in the absence of research to establish causal linkage of these two parameters. ADF&G has worked closely with the FS to develop forest-wide standards and guidelines that would provide fish habitat protection.

ADF&G has conducted a limited number of post-harvest field inspections and notified the FS of riparian buffers that had not been retained as required under the TTRA. The FS has responded positively to these inspections and is working to reduce or avoid mistakes in buffer layout. Finally, ADF&G continues to assert its authority to implement the State's Anadromous Fish and Fishways Acts on both the Tongass and the Chugach National Forests to ensure that instream and nearshore riparian fish habitat is protected during roading and logging.

Collectively, the intent of the TTRA, FPA, ACMP, and state fish habitat statutes are virtually identical to that of PACFISH: To ensure the adequate preservation of fish habitat by maintaining a short- and long-term source of large woody debris, stream bank stability, channel morphology, water temperatures, stream flows, water quality, adequate nutrient cycling, food sources, clean spawning gravels, and sunlight. Aside from achieving greater enforcement of Alaska's Anadromous Fish and Fishways Acts on national forests, these management instruments are already in place. In fact, the Commissioner of DNR began the final phase of undertaking a revised FPA program in Alaska when he adopted implementing regulations for the FPA in June of 1993.

WATER QUALITY MANAGEMENT ON THE TONGASS

Maintaining water quality in Alaska's National Forests through Best Management Practices (BMPs) implementation and effectiveness monitoring is a critical component of the FPA strategy. As the state's lead water quality protection and management agency, the Alaska Department of Environmental Conservation (ADEC) has the responsibility and the authority to control nonpoint source pollution on National Forest lands in Alaska.

Responsibilities for forestry related sources of nonpoint source pollution and water quality protection and monitoring between the ADEC and the Forest Service was formalized through a Memorandum of Agreement (MOA), signed on April 6, 1992. The purposes of the MOA are:

1) for ADEC and the Forest Service to commit to the responsibilities and activities to be performed by each agency pursuant to National Forest water quality protection tasks described in the Alaska Nonpoint Source Pollution Control Strategy (NPS Strategy), approved by the U.S. Environmental Protection Agency (EPA) in August 1990;

2) to ensure Forest Service activities meet Federal consistency requirements of

a. § 319(b)(2)(f) and 319 (k) of the Clean Water Act as amended (PL 100-4) as specified in pages 88 through 92 of the NPS Strategy,
b. § 313 of the Clean Water Act,
c. Executive Order 12088; and,

3) to establish the Forest Service as the agency responsible for monitoring and protecting water quality on National Forest System lands in Alaska for purposes of the Clean Water Act (CWA), as amended.

The MOA references three attachments that together constitute the "Forest Service Alaska Region Water Quality Management Plan." The ultimate purpose of this plan is to maximize water quality protection on National Forest Lands in Alaska by specifying ADEC and Forest Service water quality management and protection responsibilities.
The three MOA attachments are the:

1) Forest Service Soil and Water Conservation Handbook, Chapter 10 (FSH 2509.22); also known as the Forest Service BMP Handbook;
2) NPS Strategy; and
3) Alaska Water Quality Standards - 18 AAC 70.

Forest Service Soil & Water Conservation Handbook (BMP Handbook)

The Forest Service Soil and Water Conservation Handbook consolidates the Forest Service BMPs (including riparian buffer and management requirements) that are to be implemented for all ground disturbing activities on the Tongass and Chugach National Forests, including timber harvest related activities.

The Environmental Protection Agency (EPA) has recognized that BMPs are the primary mechanism to enable the achievement of State Water Quality Standards (WQS), and if designed and implemented in accordance with a State approved process, will normally constitute compliance with the CWA.

The Forest Service BMPs have been designed, when properly implemented, to achieve the WQS. The WQS are used in part as parameters of BMP effectiveness monitoring projects, information that is then used to determine the effectiveness of the BMPs. BMP implementation and effectiveness monitoring objectives are detailed in the BMP Handbook.

Periodic reviews of the BMP Handbook, as per MOA requirement and ADEC input, are done to help achieve the goal of BMP implementation meeting the WQS and protecting water uses such as growth and propagation of fish, shellfish, and other aquatic life. The latest revision of the Forest Service BMP Handbook was recently completed and effective June 25, 1993.

Alaska Water Quality Standards

The goal of the ADEC/Forest Service BMP implementation and effectiveness program is to meet the WQS found in 18 AAC 70. The WQS were developed in part to protect water uses such as growth and propagation of fish, shellfish, and other aquatic life. WQS are revised every three years based on new information, changing policies, and public concerns.

Other components of the Water Quality Program
on National Forest Lands.

1) Water quality is assured through the Alaska Coastal Zone Management Program using standards found in the FPA and the Forest Resources and Practices Regulations.

2) The state is currently preparing an assessment of the § 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990. A draft document analyzes the federal management measures, including forestry management measures, as part of Alaska's response to § 6217 (g). Final participation in this new federal program will be based on a final analysis of the program to Alaska and pending federal guidance.

3) Procurement of Clean Water Act 319 monies fund, in part, BMP effectiveness monitoring projects. An example is the Lake Florence BMP effectiveness monitoring project.

4) As required by § 305(b) of the Clean Water Act, the ADEC assesses and documents the quality of the state's waters. This document is developed every two years. In the 1992 report only three impaired waterbodies are listed associated with timber harvest activities.

5) ADEC participates with the Alaska Working Group on Cooperative Fisheries and Forestry Research. This working group is composed of agency, industry, and environmental interest groups with the goal to develop research priorities and procure funding for research projects.

The NPS Strategy

The NPS Strategy, approved by the EPA in 1990, integrates existing water quality programs to address nonpoint source pollution. For forest practices, the NPS Strategy details seven tasks to address forest source nonpoint source pollution specific to National Forest lands in Alaska. The MOA was revised in part to ensure that ADEC/Forest Service NPS Strategy tasks are adequately addressed.

The seven tasks that relate to National Forest lands in Alaska are:

1) revise and reauthorize the ADEC/Forest Service Memorandum of Understanding (now referred to as the MOA);

2) revise and reauthorize the Division of Governmental Coordination/Forest Service Memorandum of Understanding;

3) evaluate and certify the Forest Service BMP Handbook;

4) evaluate the effectiveness of Forest Service BMPs in meeting WQS and make appropriate revisions to the BMP handbook;

5) evaluate Forest Service planning framework, watershed and water quality protection guidelines, and inspection and enforcement processes;

6) conduct ongoing review and evaluation of selected Forest Service planning products: forest land management plans, EISs, EAs, contracts, annual operating plans, and harvest unit layouts; and

7) conduct ongoing, periodic field inspections of timber harvest operations on National Forest lands in cooperation with the Forest Service.

With the exception of task 2, all of the tasks have been or are currently being addressed by ADEC and Forest Service staff. A majority of the tasks are ongoing and require a priority commitment by the agencies. This priority commitment was made a part of the MOA. Additionally, to help ensure MOA implementation, the ADEC and Forest Service annually meet at a public noticed meeting to discuss Forest Service water quality monitoring reports and other MOA issues.

FISCAL NOTE

STATE OF ALASKA
1994 LEGISLATIVE SESSION

BILL NO. HJR 56

Revision Date: 2/21/94
Title: Exempting Alaska for "Pacfish" regulations
Sponsor: By request of the House Economic Task Force
Requested: House Fisheries

Department Affected: Commerce and Economic Development
BRU: DCED
Component:
COMPONENT SERIAL NO.

Expenditures/Revenues:

OPERATING EXPENDITURES	FY 95	FY 96	FY 97	FY 98	FY 99	FY 00
PERSONAL SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0
SUPPLIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL EXPENDITURES	0	0	0	0	0	0
CHANGE IN REVENUES ( )	0	0	0	0	0	0
FUND SOURCE						
1002 Federal Receipts	0	0	0	0	0	0
1003 GF Match	0	0	0	0	0	0
1004 GF	0	0	0	0	0	0
1005 GF/Program Receipts	0	0	0	0	0	0
1006 GF/MHTIA	0	0	0	0	0	0
Other	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0

Estimate of current year (FY 94) cost: $ 0

POSITIONS						
FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS: (Attach a separate page if necessary.)

Prepared by:
Division:
Phone:
Date:

Approved by Commissioner: Paul Fuhs
Agency: Commerce and Economic Development
Date: 2-22-94

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Rev 11/93

FISCAL NOTE: DEPT. OF COMMERCE

Div of Econ Devt, DCED

Impacts of the Proposed PACFISH Management Strategy to the Southeast Alaska Economy August 1993

INTRODUCTION

The forest products industry has been a major component of the Southeast Alaska economy since the 1950s. However in the 1990s, there is uncertainty regarding the future of the industry. This is due in large part to the restricted access to stable timber supplies. The proposed PacFish management strategy has the potential to have significant adverse impacts to the economy of Southeast Alaska by essentially shutting down this basic sector industry.

In 1992, the forest products industry, including timber harvest-related US Forest Service (USFS) employment, directly generated an annual average of 2950 jobs and $124 million in payroll from Tongass Forest timber resources, excluding private (native) timber.[1] The forest products industry accounts for over one-third (34%) of all private basic industry employment, or 24% of all basic industry including government basic industry, in the region. This industry accounts for an even greater percentage of the key winter months private employment options for the region.

Forest Service estimates indicate 42% of the land base will be impacted by the proposed PacFish management strategy. Assuming this will ultimately correspond to volume of timber offered for harvest, which in turn corresponds to employment generated by the forest products industry, Southeast Alaska can expect a loss of 1711 jobs and a $72 million reduction in payroll from direct employment alone.

For the purpose of this analysis, a conservative range, a 42 to 70% reduction in land base is carried though. It is important to note that additional impacts to the land base may be experienced depending on the PacFish alternative implemented. Furthermore, the economic viability of the remaining timber in current markets may effectively decrease supply by more than 70%.

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[1] Direct employment includes all labor involved in accessing timber, falling the timber and transporting the logs to sawmills or pulpmills, and finally processing the logs into lumber or pulp. Direct employment does not include labor involved with the supplying of remote camps, other transportation support of logging communities, or labor employed in the sales or contracted service of logging equipment, McDowell Group, 1993

IMPACTS OF PACFISH

Reduction in Land Base

The Forest Service prepared an analysis of the effects of the proposed PacFish management strategy on the Tongass by examining four pilot quads on Northeast Chichagof, Kuiu, and North Prince of Wales Islands. These four quads showed less than 15% variation. Thus it is reasonable to assume that they represent forest-wide effects. In the analysis it is estimated that 42-43% of the suitable forest lands would fall within riparian habitat conservation areas (RHCAs). If intermittent streams are assumed to be "Class IV" streams then the effect in terms of forest lands that fall within RHCAs would be increased to 52-53%.

The Forest Service also did a rough logging-transportation plan for the remaining timber resources. The plan assumes that, during watershed analysis, roads will be permitted through RHCAs. In the four transportation sheds analyzed, the amount of timber accessed per mile of road was reduced by 45%. Furthermore, new road construction would increase $50,000 per mile and reconstruction to new design standards could be increased by $100,000 per mile. These costs would be approximately double what is currently the case and will greatly impact the marketability of remaining timber resources. Added road construction costs could be expected to preclude additional timber stands from development.

An additional 13% would change in operability due to isolation brought about as a result of conflicts with RHCAs mandated by PacFish. The Forest Service assumes that individual tracts of forested lands isolated due to PacFish setbacks could only be harvested by helicopter. If these isolated stands are added to those directly impacted by the RHCAs the total land base is reduced by 65-66%.

What the Forest Service does not consider is the fact that the higher grade timber is, by and large, located on the better developed soils of the stream corridors. Thus, the economic viability of the remaining woodpile is further diminished. An actual percentage is not estimated in this analysis, but it is clear that the cumulative impacts of PacFish (both reduction in land base and economic viability) could effectively decrease supply upwards of 70%.

Regional Economic Impacts - Background

The modern forest products industry was born in the 1950s, when the pulp industry was drawn to the region. It was the assurance of supply via long term timber harvesting contracts that induced pulp manufacturers to make the huge investment required in Southeast Alaska. In 1954, the Ketchikan Pulp Company completed construction of a facility near Ketchikan and five years later, Alaska Lumber and Pulp Company completed construction of pulpmill near Sitka, marking a turning point in the economic development of these communities, in particular, and Southeast Alaska in general. Almost overnight, the forest products industry became Southeast Alaska's leading industry.

In the 1980s and 1990s, legislative and resource management issues have been as important as market conditions among the forces shaping the region's forest products industry. The net effect of the Alaska National Interest Lands Conservation Act and the Tongass Timber Reform Act was to significantly reduce the available Tongass timber resource. By placing high value timber off-limits, these acts have further reduced the overall quality of the Tongass timber resource. Finally, the Timber Reform Act mandated changes in Tongass management practices that could negatively impact timber availability of the remaining commercial forest land base.

PacFish Impacts on Employment

In 1992, estimates indicate that Tongass National Forest timber harvests generated an annual average of 2,500 jobs with a payroll of $103 million. Included in Tongass forest products industry employment are approximately 900 pulpmill jobs accounting for $40 million in payroll. These figures do not include pulpmill employed loggers or sawmill workers. The pulpmills are the largest single employers in Sitka and Ketchikan and the State of Alaska's largest manufacturing employers.

Sawmills generated the annual equivalent of 537 jobs during 1992. Sawmill workers earned approximately $21 million in wages and salaries. Logging on the Tongass National Forest generated an estimated annual average of 840 jobs during 1992. Tongass loggers earned $34 million in wages and salaries. Timber harvest-related road construction accounts for approximately 120 jobs (annual equivalent) to the Tongass forest products industry. These construction jobs accounted for about $5 million in payroll earned during 1992.

Other basic components of the Tongass forest products industry added an additional 110 jobs and nearly $4 million in payroll. This includes log scalers, towing and stevedoring workers.

The table below shows the potential range of impacts to the forest products industry employment and payroll as a result of implementing PacFish.

PacFish Impacts on 1992 Employment and Payroll

Component	1992 Average Employment	After PacFish	Total Payroll	After PacFish
Pulpmills	906	272 - 525	$39.7 million	11.9 - 23.0 million
Sawmills	537	161 - 311	$20.8 million	6.2 - 12.1 million
Logging	840	252 -487	$33.9 million	10.2 - 19.7 million
Road construction	120	36 - 70	$ 5.0 million	1.5 - 2.9 million
Towing, Stevedoring and Other	110	33 -64	$ 4.0 million	1/2 - 2.3 million
Tongass Industry Total	**2,513**	**754 -1457**	**$103.4 million**	**$ 31.0 - 60.0 million**

The Forest Service itself generated 935 full-time equivalent positions in Southeast Alaska in 1992. The Forest Service estimates that 448 are directly involved in timber sale preparation, implementation and management. These Forest Service workers earned an estimated $20.8 million in annual payroll in 1992.

A very significant portion of Forest Service employment in Southeast Alaska, resulting from management of the Tongass as a commercial timber resource, is expected to decline. It is not possible to determine exactly how Forest Service employment would be affected by a reduction in the Tongass commercial timber resource base as a result of PacFish. Reallocation of federal funding to other types of Tongass management activities, such as watershed analyses, could mitigate Forest Service employment reductions.

In the past, when timber harvest and forest products industry employment declined overall, timber related USFS employment increased in response to Congressional direction to accelerate the timber sale preparations. In the long-term, however, it is anticipated that timber related USFS employment would reflect the amount of commercial timber resource available under PacFish management. The table below shows potential range of reductions in employment and payroll as a result of PacFish.

Total Tongass Forest Products Industry
Estimated Employment and Payroll In 1992

	1992 Average Employment	After PacFish	Total Payroll	After PacFish
Tongass Industry Total	2,513	754 - 1457	$103.4 million	31.0 - 60.0 million
US Forest Service	448	134 - 260	$20.8 million	6.2 - 12.0 million
Grand Total	**2,961**	**88 8 - 1717**	**$124.2 million**	**37.2 - 72.0 million**

Outlook Under PacFish

There is little certainty regarding the outlook for the Tongass forest products industry. However, the implementation of any interim Forest Service policy that has the potential effect of reducing the land base by 42 to 70+% will most certainly have a negative impact. In the near term, the industry is faced with weak markets for pulp, strong markets for lumber, and continuing concern over timber availability. Considerable hope has been expressed recently that Alaska could develop an increased value-added component to its Southeast facilities due to the increased cost of alternative supplies. The impact of the PacFish management strategy on timber availability will **eliminate** Southeast Alaska's ability to respond to increased demand for forest products.

Southeast Alaska's, seafood industry generates the annual equivalent of 4,100 jobs. Tourism adds an estimated 2,200 jobs to the basic economy. As a result of the recent closure of Green's Creek, mining accounts for less than 200 jobs. State and federal government continue to be important components in Southeast Alaska's basic economy adding upwards of 5,000 and 2,000 basic sector jobs respectively.

The forest products industry accounts for more than one in three private basic industry jobs in Southeast Alaska. Timber harvest and manufacturing from the Tongass National Forest accounts for about 62% of the forest products industry in the region. In spite of recent declines, the role of the forest products industry among all basic industry, including government, is still substantial. The forest products industry including related Forest Service employment accounts for nearly one quarter (24%) of all basic industry employment. Thus a 42 to 70+% reduction to the Tongass component will have an unacceptable impact on the region's economy.

This analysis <u>does not consider the indirect impacts</u> of the forest products industry on the Southeast economy. It is, however, important to note that the industry does have important secondary impacts and that indirect impacts vary from one segment of the industry to another. The pulpmills have by far the greatest impact. They provide hundreds of high-paying, year-round, almost entirely resident jobs which account for a high level of local spending.

Sawmills have comparatively high indirect and induced impacts. They too have generally well paid, resident workforce and represent an important industrial property tax bases. Among the various components of the forest products industry, remote logging camps have the lowest level of indirect and induced impacts. Still, remote logging operations do provide a significant market for many Southeast Alaska service and supply businesses.

There are many indirect service oriented activities and jobs that can only exist in the presence of a viable, functioning private sector. Substantial indirect economic losses are expected to occur as a result of the loss of land base available for the forest products industry.

Community Economic Impacts - Sitka and Ketchikan

The pulpmills are the largest employers in Sitka and Ketchikan. There is grave concern regarding the ability of these mills to maintain operations with the timber supply diminished by the proposed PacFish policies. While both mills have survived in past years without extended shut downs, PacFish is being proposed at a time when the Sitka mill has already announced an indefinite shutdown. Cumulatively, weakening markets, already artificially constrained timber supply, and additional PacFish constraints will force the permanent shut-down of the pulpmills. PacFish gives rise to 42 to 70+ % reductions in the scale of pulp mill operations. Reductions of this magnitude are not economically feasible. Major plants have volume-related economies of scale only when the plant is operating at, or near, full capacity. These important advantages are lost at reduced volumes. A reduction of 42 to 70+% in log supply is more likely to result in full closure than in reduced operations.

It is not possible to say that implementation of the proposed PacFish management strategy will unequivocally cause the closure of both pulp mills, as the permanent closure of one could result in increased supply for the other. Given current market conditions, however, it is a reasonable scenario. The result could be the loss of over 900 jobs in Sitka and Ketchikan, plus hundreds of support jobs.

Further, pulpmills represent an important property tax base in Sitka and Ketchikan. The pulpmills add millions of dollars to local government coffers either through property tax payments or through purchases of public utilities; These property tax payments and high volume purchases of public utilities help keep local government and public utility costs lower for residents of the communities.

All told, without the pulp mills, the economies of Sitka and Ketchikan would shrink by about one-quarter and some costs of living for remaining residents would increase significantly. Property values in Sitka and Ketchikan would be expected to decline sharply.

Alaska Pulp Corporation (APC) will suspend its Sitka pulp mill operations indefinitely beginning September 30, a move that company officials say is primarily related to the USFS administration of its long-term timber purchase contract. Implementation of the proposed PacFish management strategy on the Tongass National Forest will likely affect the timber supply for APC to the point where permanent closure is the only reasonable economic alternative available to the company.

The actual timing of impacts due to closure will vary depending on the existing financial circumstances and the schedule for shutting down. Studies of other Alaska communities show almost all impacts are experienced within two years, the heaviest impacts being within the first six months. The initial period of outmigration and economic recession is followed by bankruptcies, collapse of the real estate market, business closures, reductions in government services and additional job loss and outmigration as the effects are played out throughout the support sector of the remaining economy.

The following table from a recent study provides a summary of projected impacts due to the closure of just one mill on the economy of Sitka. Based on 1988 figures (The McDowell Group, 1989):

Impact	Loss	% of Sitka Total
Population	2,050	24.1
School Enrollment	413	24.1
Employment	944	24.1
Payroll	$28.7 million	28.5
Gross Business Sales	$37.4 million	28.5
Selected Municipal Impacts	$6.4 million	32.7
Real Estate Values	$170.8 million	46.1

A detailed study has not been conducted for potential closure of Ketchikan Pulp Corporation. It is reasonable to assume similar impacts to the City of Ketchikan and Gateway Borough, as adjusted for the combined population of 22,588. Although the greater Ketchikan area is nearly three times the population of Sitka, community profiles[2] suggest that local economy and employment statistics are proportional.

Other Southeast Communities

Most of the other communities in the region are highly dependent on the forest products industry for their livelihood. They are extremely limited with respect to opportunities for economic diversification.

Although fishing is the mainstay in terms of number of jobs, forest products provides over half the cash economy for the Cities of Hoonah, with a population of 793 and Kake, with a population of 725. The forest products industry contributes approximately 35% to the economy of the City of Wrangell, or nearly 300 jobs. The APC sawmill is the largest employer in this community of 2,539. Thorne Bay (population 637), Klawock (population 758) and Craig (population 1,637), located on Price of Wales Island, all rely on the forest products industry for approximately 90% of their private sector employment. Unemployment Insurance data indicate an annual average of 557 jobs for this combined census area in 1992[3].

Clearly, a reduction of 42 to 70+% in the land available for harvesting of forest products would be devastating to these small, undiversified economies. For the Price of Wales area alone, the number of jobs would be reduced by 234 - 390, a tremendous impact to an area of 3032 people.

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[2]Alaska Department of Community and Regional Affairs' Community Database - Research and Analysis Section, Municipal and Regional Assistance Division, Juneau, Alaska, 1993.
[3]Alaska Department of Labor, Research and Analysis Section, Southeast Forest Product Wage and Salary Employment by Census Area, 1993.

Of key, and sometimes overlooked importance, is the disproportionate impact of the forest products industry to the wintertime economy of the region. The remaining private sector employment, fishing and tourism, is of a highly seasonal nature. The forest products industry, however, provides the economic glue that holds a major part of the economy and hence society together during the winter months.

The loss of the forest products industry associated with PacFish may drive companies away from Southeast which could ordinarily survive the winter doldrums. Given the migratory nature of businesses catering to the fishing and tourism industries, there would be little inducement for the service sector to remain in Ketchikan or Sitka absent the incremental sales associated with the Forest products industry. A disproportionate impact to year-round availability of services in these communities would be the result of the implementation of interim PacFish policies.

CONCLUSION

For the most part, this analysis has focused on the direct, and to a lesser extent the indirect, impacts to the economy of Southeast Alaska. There are many other indirect impacts that will likely be experienced that are beyond the scope of this study, but nevertheless, deserve mention. This report has not attempted to quantify the significant socio-cultural and psychological impacts that would undoubtedly be associated with an economic impact of this scale. Nor has an effort been made to assess impacts beyond the geographic scope of Southeast Alaska. It is not unreasonable to anticipate impacts to the balance of trade, particularly with the pacific rim and with our newest trading partners in Russia. Suffice it to say, implementation of interim/permanent PacFish strategies will hurt many people in Alaska.

This analysis clearly demonstrates that the proposed PacFish management strategy has serious, negative, economic ramifications for the people of Southeast Alaska, and the State of Alaska as a whole. If we consider only the least case impacts of the proposed PacFish management strategy, Southeast Alaska would be faced with the loss of 1711 jobs and $72 million in payroll. PacFish would create an untenable situation for a region that relies on the forest products industry for 24% of its basic industry.

Unequivocally, the proposed PacFish management strategy, both interim and long term, have devastating and potentially far reaching impacts to the people of Alaska.

PACFISH STRATEGY
Executive Summary

Revised May 1, 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 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 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."

- **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 Sacrament 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 by AFS 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.

- **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 much of the 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.

- **Hatcheries** were built to be a part of the solution to declining populations of salmonics. 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 by AFS 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.

- **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 by the 1991 AFS 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 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:

- **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 Kemo 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.

- **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.

- **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

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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

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

- **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.

- **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.

- **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:

- **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

- **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.

- **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.

- **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.

- **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 9A 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 key watershed identification, watershed analysis, Riparian Habitat Conservation Areas and standards and guidelines, 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.

- **Riparian Management Objectives** 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

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- **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.

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 critical status of many of the "at risk" anadromous fish stocks and the Forest Service and BLM's need to demonstrate commitment to improved habitat conditions on lands they administer, consideration is being given to the issuance of interim direction that will apply to Forest Service and BLM stewardship of all anadromous fish habitat on National Forests and Public Lands in the West. Appendix 5K of the Report of the Scientific Analysis Team is one of the six PACFISH developed alternatives, and provides some indication of the type of interim direction being considered. Selection of final management direction will proceed with a full NEPA review of all alternatives that meet technical and legal requirements.